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THE IBIS,
A
QUARTERLY JOURNAL OF ORNITHOLOGY.

EDITED BY
PHILIP LUTLEY SCLATER, M.A., Ph.D., F.R.S.,
SECRETARY TO THE ZOOLOGICAL SOCIETY OF LONDON.



VOL. I. 1889.

SIXTH SERIES.

Cognovi omnia volatilia celi.

LONDON:

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1889.

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PREFACE.

WHEN, upon the resignation of Mr. Howard Saunders, I consented to carry on the duties of the Editorship of this Journal for another period of six years, I was under the impression that in the place of my former colleague I should have associated with me some other member of the B. O. U., whose assistance would materially tend to lighten my labours. But upon consulting some of the older and more experienced members of the Union I found that there was a decided concurrence of opinion that it would be better to revert to the original system of having only one responsible Editor. To this expression of feeling I agreed, somewhat unwillingly, to defer ; and, in spite of increasing years and the heavy burden of other pressing avocations, I have consented to undertake the sole Editorship of the Sixth Series of 'THE IBIS,' as I had formerly that of the First Series.

During my first year of office, I am pleased to say that I have received from my brother Members of the Committee of the B. O. U. great support in this arduous task. I also wish to acknowledge the material assistance which, as kindly arranged by the Committee, Mr. F. H. Waterhouse, whose

zeal in hunting up references and in performing other literary work is well known to many of us, has given to me during the same period.

I am likewise much gratified in being able to point out the large measure of support still accorded to the Editor by the contributors to this Journal. The first volume of the Sixth Series is, it will be observed, in no way inferior to its thirty companions in number of pages and plates, and, as it is believed, does not yield to them as regards the value and interest of its contents. This promising inauguration of the new series induces me to hope that I may be enabled to carry out the task I have undertaken to a successful issue.

P. L. S.

3 Hanover Square, London, W.

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ERRATA.

Page	Line
25.	6 from bottom, <i>for</i> "Pajari" <i>read</i> "Pajeritos"
117.	17 from top, <i>for</i> 1885 <i>read</i> 1825.
125.	22 from top, <i>for</i> Frankland's <i>read</i> Franklin's.
135.	17 from top, <i>for</i> Mac-Bury <i>read</i> MacRury.
135.	20 from top, <i>for</i> Monarch-Islands <i>read</i> Monach-Islands
136.	15 from top, <i>for</i> viii. <i>read</i> vii.
138.	top line, <i>for</i> 1877-78 <i>read</i> 1887-88.
139.	8 from top, <i>for</i> Vernon <i>read</i> Verner.
140.	6 from top, <i>for</i> New Zealand <i>read</i> New Ireland.
275.	17 from bottom, <i>for</i> <i>criniger</i> <i>read</i> <i>minutus</i> .

THE IBIS.

SIXTH SERIES.

No. I. JANUARY 1889.

I.—*Notes on some Birds of the Canary Islands.*

By E. G. MEADE-WALDO.

BEING obliged to spend some months in the Canary Islands last winter, I devoted myself almost entirely to observing and making a small collection of the birds. I landed in Tenerife early in October and left again in June; so I saw something of both the autumn and spring migrations. In February I went to the island of Gomera, to which I paid another short visit in May, while parts of March and April I spent in Fuerteventura. Of the birds of Tenerife so much has already been written by Mr. Godman and Capt. Savile Reid, that I shall only contribute a few remarks on the habits of some of the species, and notice several additions to the migrants.

TURDUS MUSICUS.

The Song Thrush was abundant in the winter in the high woods and wherever there was sufficient covert; a few came down to within 1500 feet of the sea; they were always remarkably wild.

TURDUS PILARIS.

I saw a Fieldfare which had been shot on the 19th of March close to Orotava.

TURDUS MERULA.

Blackbirds swarmed in the high forests during the winter ; there was a great preponderance of males. The main body left about the 30th of January, and those which remained to breed did not nest early.

RUTICILLA PHENICURUS.

I saw a male Redstart on two occasions close to my house near Orójava.

CYANECULA WOLFI.

A boy showed me two White-spotted Bluethroats which he had shot near Laguna ; and as he thought a good deal of them, I expect they are rare stragglers.

ERITHACUS RUBECULA.

The Robin of Tenerife has the red on its breast of a dark reddish orange and the white of the abdomen and lower part of the breast very pure, the red of the throat extending a short way only. I mention this because in Gomera the Robin has the breast of a pale dirty orange, the colour extending downwards much farther than in the Tenerife bird, and the white of the breast is nowhere pure, but of a dark fawn. These differences are constant. It has been stated that the Redbreast of the Canary Islands belongs to the dark northern form ; but my Tenerife birds are much darker and brighter than ours, while the Gomera variety is much paler and generally duller. All my Gomera Redbreasts have a hook to the upper mandible, which is wanting in my Tenerife ones.

MUSCICAPA GRISOLA.

I saw one Spotted Flycatcher that had been shot in the winter near Laguna.

SERINUS CANARIUS.

Large numbers of Canaries ascend to the high mountain-woods to breed, going up about the end of April ; they were only breeding in the end of May. Those which remained in the valleys bred very early, and I found a nest with hard-set eggs early in February.

FRINGILLA TEYDEA.

I saw a great deal of the Teydean Chaffinch, which goes about during the winter in small, rather scattered flocks, sometimes associating with the Azorean Chaffinch, *F. tinillon*; in fact, I generally found them near other birds. Its call-note is a loud double chirp, sometimes like that of the Azorean Chaffinch, but very easily distinguished by its plaintive ring. It is a very late breeder, only commencing to build at the end of May. I found several pairs breeding in a stretch of pine-forest at an elevation of nearly 6000 feet, where there were many very large lichen-covered trees, and where the forest had been less hacked about than is usually the case in the Canaries. With the exception of a few Tits and Goldcrests, a pair of young Kites just on the wing, some Great Spotted Woodpeckers, and a pair of Sparrow-Hawks, whose nest I found, they were the only birds there. I heard many cocks singing a regular Chaffinch's song—several low notes, gradually rising and ending in three or four harsh ones. I found a nest in course of construction by watching the birds carry materials; they were perfectly fearless, collecting lichen &c. within a few feet of where we stood, and working away while we were under their tree. I went up to this forest again on the 4th of June, hoping to get eggs, but found it impossible to reach the nest, though I got on to the branch on which it was placed; it was completed, and from the behaviour of the birds I think they had laid. Three out of four other nests found this day were at the end of thin and decaying branches and inaccessible; they were probably empty, as in each case the parent birds were carrying materials. I got up to one nest, which was half built, very neat and round, like a Chaffinch's, but with a few pine-needles worked in; the hen came and added materials while I was sitting in the tree. I did not find these birds in the *Retama*, where Webb and Berthelot mention having found them, but in all cases they were in the pines or in the tree-heath and laurel among the pines; they were always very fearless. The plumage of the female is much bluer in summer than in winter. I am afraid the days of this species are numbered, as the

natives have now a great idea of their value, and shoot them on every possible occasion.

CYPSELUS UNICOLOR.

A very few Swifts pass the winter in Tenerife ; the only one I shot there was apparently *C. unicolor*. Large numbers of *C. pallidus* arrived early in February, and the main body of *C. unicolor* later.

AQUILA, sp. inc.

I saw several Eagles during November and early in December, but never near enough to be sure of the species.

FALCO PEREGRINUS.

I saw Peregrines on three occasions in Tenerife ; they all struck me as being very small tiercels, but only one was near to me ; he had a very blue back and very black cheeks*.

ARDEA PURPUREA.

A very fine Purple Heron that had been shot at Laguna was shown to me.

ARDEA BUBULCUS.

I saw three Buff-backed Herons during the winter, two alive and one that had just been shot.

POEZANA PARVA.

The Little Crake has occurred at Laguna ; I saw one that a boy had caught.

GLAREOLA PRATINCOLA.

A man shot a Collared Pratincole, which I saw in the flesh.

Of the Waders I saw and obtained examples of the Grey Plover, Ring Plover, Kentish Plover, Turnstone, Dunlin, Curlew-Sandpiper, Sanderling, Common and Wood Sandpipers, Redshank, Greenshank, and Whimbrel, the last-mentioned in pairs up to 5th of June. I never found Snipes numerous, but they are said to be so on some occasions. Woodcocks appeared to be more numerous in the breeding-season than during the

* [Capt. Reid will be glad to learn that this species is not, as he feared, exterminated (*cf.* *Ibis*, 1887, p. 420).—F.D.]

winter; but this was probably owing to their showing themselves more. In May I have seen as many as ten or twelve on the wing in an evening. A small piece of turf under some chestnut trees was a favourite playing-ground, and five or six would sometimes be strutting about on it at the same time. I have had them alight within two yards of me, although I was sitting quite exposed; they were all rather small birds. The only evidence of any migration was three or four seen in a barranco, not more than 1000 feet above the sea.

I saw no Herring Gull except the yellow-legged *Larus cachinnans*. Bulwer's Petrel I never shot, but saw two or three off the coast of Tenerife when on my way to Gomera. Wilson's Petrel (*Oceanites oceanicus*) also occurs. Three Cinereous Shearwaters (*Puffinus kuhli*) brought to me alive by some boys refused to fly away, although absolutely uninjured. If thrown up they dropped like stones, and even when left out all day and night on a parapet, it was not until the second night that two of them disappeared; the other had to be turned on to the sea, when it went off all right.

I started with a friend for my first visit to Gomera on Feb. 6th, riding across Tenerife by the valley of Santiago, and embarking in a schooner which we had ordered to meet us at San Juan, below Guia. The schooner was two days late, and we did not land at San Sebastian, the port of Gomera, until the morning of the 10th. The distance between the islands is only some fifteen miles, but the frequent calms make the journey of most uncertain length. The principal object of my visit on this occasion was to obtain specimens of *Columba laurivora*, and if possible to get some young ones alive. Nothing less likely for Wood Pigeons than the aspect of the country as seen from San Sebastian can well be imagined; not a tree, except a few palms, to be seen, barren mountains intercepted by very deep barrancos everywhere. On the beach were flocks of Kentish Plovers and a few Turnstones, while Yellow-legged Herring Gulls, Ravens, and Egyptian Vultures, with Goldfinches, Rock Sparrows, Berthelot's Pipits, and Corn Buntings, were the

most noticeable birds near the town. Having discovered and made the acquaintance of a native sportsman, I questioned him about the birds, and he told me that there were two kinds of Pigeons in the mountain-forests: one, "Paloma turque," which I recognized from his description as the common Tenerife "Paloma turquesa" (*Columba bollii*); the other, a much larger bird, called "Rabichi" or "Rabi blanca," which I saw would be *C. laurivora*.

Starting early next morning to cross the island, we climbed slowly up, beasts of burden being very hard to get and very bad in San Sebastian. At about 3000 feet we got into some low heath-scrub, where *Sylvia melanocephala* was plentiful, also a few of the pale-coloured Robins. We saw very many Partridges (*Caccabis petrosa*), and Ravens (*Corvus tingitanus*) were in flocks and very tame. A Red Kite soared over us; but this species is comparatively scarce in Gomera, where there are but few pine trees. Blackbirds, Thrushes, Linnets, and Goldfinches were about all the other birds we saw here; at 4000 feet the heath got higher, and I saw a most brilliant cock Azorean Chaffinch. After 4300 feet we began to descend, and soon opened out large valleys and hills of evergreen forest stretching to the north. I soon heard Pigeons cooing, and recognized the voice of *C. bollii*. Goldcrests, Tits, and Chiffchaffs were here very abundant, and at dusk many Woodcocks flighted over us, squeaking and croaking, and then we felt our way gradually downwards in the dark by an almost blind track, not arriving at our destination till 10 P.M. I started early the next morning for the high forest, where my sporting friend said I should get Pigeons, accompanied by two or three peasants carrying my things, for I intended to sleep upon the Pigeon-ground. The woods were very fine, the heaths and evergreen trees of many kinds being far larger and more luxuriant in growth than any I had ever seen before. We hunted carefully through the woods that day and the next without seeing a single *C. laurivora*; but *C. bollii* was common enough, and I shot two or three for specimens, finding some of its nests, each containing one egg, and catching alive a nearly full-grown young one, a fine

male, which I have at the present time. Woodcocks were very abundant, and so were Partridges wherever the ground was sufficiently open. Tits, Goldcrests, &c. swarmed, and I feel almost sure I saw a Lesser Spotted Woodpecker; but I had come for *C. laurivora*. Getting impatient at last, I extracted from my guides that there were no "Rabichi" up in the mountains, but that they were in the Cordillera, between the mountains and the valley, and that there it was too steep and dangerous for me to shoot, owing to the wet weather, that the stones, loosened by the rains, were falling in all directions, and that the ground fell away if walked upon. The next morning at daybreak we started for the Cordillera, having got over the objections of my companions by an offer of a good reward for each "Rabichi" I killed. To-day and henceforth I dispensed with my original guide, as he had evidently thought that Pigeons were Pigeons, and that *C. bollii* would do as well as *C. laurivora*. A capital young fellow accompanied me, Luis by name, who was very keen and knew every inch of the ground, and was also well up in the birds of his island. He carried his gun and was a very fair shot, and if there were many more like him the Gomera Partridges would soon cease to be as abundant as they are at present; for a close time is unknown, and the cock Partridge, as he sits on a rock uttering his Curlew-like scream, while his mate is hatching close by, is a most favourite object for a stalk.

On the Cordillera, which was very steep indeed and covered with thick heath and laurel-scrub and with many precipices, the whole descending into the valley by a series of terraces, I found *C. laurivora* fairly abundant, flying along the face of the mountain in pairs and singly. Their light-tipped tails were very conspicuous and looked white when flying, giving them somewhat the appearance of gigantic Turtle-Doves. Their flight was peculiar, quite unlike that of any Pigeon I had ever seen, a soft flopping flight, fairly fast. I found it exceedingly difficult to get good specimens, as if shot when flying along the mountain-side the birds were mostly dashed to pieces by a fall of over 100 feet into

the scrub; but I eventually found a place in a barranco where they used to settle in some tall trees, and there I managed to get some very good birds. They varied very much in size, my finest cock being $17\frac{1}{2}$ inches, while some were only 15 inches in length. I had on this and subsequent days many opportunities of watching them. They are very active on the ground, on which a great deal of their time appears to be spent, as one might gather from their strong muscular thighs and legs. I only heard one bird "coo," and none of those I shot proved to be nesting, very unlike the *C. bollii*, which breeds all the winter. Their flesh was capital eating and of two colours, the muscle nearest the bone being white. Their food appears to be exactly the same as that of *C. bollii*; a few, very few, *C. bollii* come on to the *C. laurivora* ground.

Three months later, May 6th, I went again to Gomera, my object this time being to get, if possible, some young *C. laurivora* alive; Canon Tristram accompanied me on this occasion. We found the Pigeons had only just began to breed; some had laid, and others were going to do so. I had, however, one dead young one brought to me. One egg only is laid. In the crops of some shot were the blossoms of flax and a little barley; the Pigeons came down into the barley regularly to feed. When first shot the bill of *C. laurivora* is white, the nares being pink. The brown wings contrast with the pale blue rump and iridescent green neck and head, giving the bird when on the wing and flying below a patchy appearance. These two Pigeons keep to their own domains, *C. bollii* to the high mountain-forest, *C. laurivora* to the scrub-covered slopes lower down, seldom encroaching one on the other. Whether *C. laurivora* is confined to Gomera or not remains to be proved; it certainly does not occur in Tenerife, where there is no ground really suited to its habits; but I think it will very likely be found in Palma, where I intend to search for it next autumn.

Fringilla tintillon was very abundant in Gomera, as was also the Canary, the young of the year, in their brown plumage, being in flocks in the valleys. The little Chiffchaff with the

light-coloured tarsi was "ticking" in every direction, a note I never heard from our bird. Rabbits were fairly common, and the common rat and the house-mouse lived in the highest mountain-forests. I also saw a small bat, with short ears and fur of a bright chestnut colour.

On March 20th I started with a friend from Tenerife, *en route* for Fuerteventura, and taking a schooner from Las Palmas, in Grand Canary, found ourselves under the high peaks of Jandia at daybreak on the 22nd. Those who have travelled among the Canary Islands will know that this was good work. We had a fair wind—plenty of it—and we had just caught the schooner, which started the day and hour it was timed to start! As we coasted along, the island looked far more mountainous than I had expected it would be; but after a time a peep through the mountains showed inland a large plain, and as there was a nice beach for landing we asked the "padron" the name of the place; he told us Gran Tarajal, and that we could land there if we liked. This we agreed to, and very soon we were on the beach of Fuerteventura, an island I had longed to visit more than any other. We had a letter of introduction to a farmer in a village, which we found to be only nine miles inland; thither we determined to go, and hiring camels on the beach—some peasants had come down on seeing our boat—we started up a valley in which was a dry river-bed, with a quantity of tamarisk growing on its banks, almost the only covert I saw in the island.

Here *Sylvia melanocephala* and *S. conspicillata* were abundant, and soon afterwards I saw Sand Grouse, Cream-coloured Coursers, quantities of Short-toed Larks, Berthelot's Pipits, some Rock Pigeons, and Egyptian Vultures. On arriving at our destination, Tuineje, where we hoped to be taken in, we presented our letter, and, though utterly unexpected, "Don Lucas de Saa" turned out of his best room and made us as comfortable as possible, as his guests. In a very short time his wife, hearing what I had come for, presented me with the handsomest pair of Houbara Bustard's eggs (*Otis undulata*) that I got on the island. They are taken by the

islanders for food !!! Many were the interesting excursions about here. I was much struck with the tameness of the birds, and especially of the Thick-knees (*Ædicnemus scolopax*), which were abundant everywhere, and came even into the villages, running about almost as tame as Fowls, and would permit an approach to within ten yards. One day I saw an old bird standing close to me, plaintively whistling, and on going up to her found she was standing by two young ones, one of which was much smaller than the other; she ran away a few yards and stood watching me,—behaviour which seems to me quite extraordinary in this class of birds. The beautiful little Trumpeter Bullfinch (*Pyrrhula githaginea*) was common about all the villages, and had young on the wing by the end of March, whilst many had commenced sitting, apparently for the second time; the long trumpeter-like pipe of the cock struck me very much.

Nearly every palm tree had its colony of Spanish Sparrows, most of the wells also harboured numbers. In the same palm trees as the Sparrows there was frequently a pair of Kestrels nesting. Near here only did I see a Stonechat (*Pratincola*, sp. inc.), that appeared to me at the time unlike any I had seen before; it was not a common bird. They had bred very early, for on March 25th I got a full-grown young bird, very much the colour of a Spotted Flycatcher. I have brought home a pair and a young bird, and on comparing them find that it is a good new species, its nearest ally being *Pratincola borbonica*. I hope to give a figure and description of this bird on some future occasion.

The Short-toed Lark was the commonest bird all over the island, and Berthelot's Pipit was also exceedingly abundant. Grey Shrikes (*Lanius algeriensis*) were common everywhere, and had their young on the wing. From the same nest they were frequently of two colours, sand-coloured and grey; I saw what was, apparently, an old bird of the sandy colour. I brought alive to England a young sandy-coloured Shrike, which is now nearly clean moulted, and is a beautiful grey bird, with pure white breast; he has a decided song, and warbles away by the hour; he began this accomplishment

while quite a baby. With *L. algeriensis* occurs also *L. hemileucurus*,—at least a skin which I brought home has been so named for me.

The Hoopoe (*Upupa epops*) was more abundant here than I have ever seen it before. By the end of March their young were full-grown. On the plains the Black-breasted Sand Grouse (*Pterocles arenarius*) was common, and, though it was the commencement of their breeding-season, were still in flocks. It was the exception to see pairs, but I often saw single birds; these were almost invariably hens. Another species, probably *P. a'chata*, also occurs, but I did not meet with it; the islanders call it "Ganga mora," *P. arenarius* being "Ganga parda." The flocks of *P. arenarius* were most regular in their movements, the same flocks frequenting the same parts of the desert at the same hour of the day; their principal food was a small creeping trefoil.

The Cream-coloured Courser (*Cursorius gallicus*) was fairly numerous and breeding; it seemed to prefer the barest parts of the desert, where the stones were mostly small. It had bred very early, for on the 23rd of March I saw a young bird almost able to fly, and also found a small young one. The old birds did not make any fuss when I was close to their young or eggs, simply running away and, when I approached, going a little further, generally creeping about 50 yards off. The eggs were very difficult to find, the only guide to their whereabouts being the scratches made by the old birds before finally fixing on a suitable place to lay.

I found the Houbara Bustard (*Otis undulata*) on all suitable ground; they preferred the plains near to the coast; their eggs were very easy to find. On March 24th a boy brought me a fine young one, which thrived well and quickly became tamed; but one moonlight night it walked out of the door and escaped. Nearly all the eggs I found were hard-set; 20th February would be their laying-time. The old birds, though shy of people on foot, were very easily approached by a little manœuvring on a donkey or camel. On one occasion, after twice riding within ten yards of a fine pair which had squatted, after being ridden after for a little

while, I sprung them on purpose, and marked them down about a quarter of a mile off. Dismounting I walked towards them, and at first could only see the male, who coolly stalked past me within thirty yards; I soon, however, saw the hen, squatting, about fifteen yards from me, and she let me look her well over before she got up, and flying round a little way, settled by the cock, and they both hurried back to where I had first found them. As this hen had either eggs or young (and from her extreme tameness I think she had young ones), it must be very unusual to find the male associating with her.

The Bustards were in small parties, pairs, and single birds; the small parties of four or five were invariably males, the pairs male and female, single birds female. I never saw a Bustard away from the desert; they appear never to come into the corn. Small snails, lizards, and a trefoil were their principal food. There were a few Song Thrushes in the tamarisks, and the islanders told me that the Blackbird occasionally occurs. A large Pipit, of which I saw many one day, I was unable to find afterwards, so I did not get a skin. I thought, of course, I could get them any time, and when I saw them I was after a cock Bustard. The only Buzzard I saw looked like the *Buteo vulgaris*; they are pretty common in the mountains.

In the neighbourhood of Puerto Cabras, on the north-east coast, there were fewer land birds, but numbers of Waders. The Kentish Plover was extremely common, breeding both near the sea and some distance inland. The Whimbrel, Sanderling, and Grey Plover were numerous; I only saw one Curlew; the Turnstone was common, the Ringed Plover rather rare. The Yellow-legged Herring Gull was more numerous than I had seen it anywhere before, and I saw one Lesser Black-backed Gull. A trip to Oliva, in the north, produced no fresh species, but birds were much more numerous than on the east coast. There is a good deal of corn-land here, and at times a great many Quails; but this year the crops are wretched, owing to the drought, and there were few. On the coast near Puerto Cabras several pairs of

the Pallid Swift were nesting in a low sandstone cliff, in holes that had the appearance of Sand-Martins' holes, only larger.

Our homeward voyage was very different to our outward, for after beating against a high headwind for two days, we had to anchor near the lighthouse on the point of Jandia, and wait for a fairer wind and less of it. This, though very tedious, was the means of my obtaining a bird that I had hoped to get, but had not seen before (I had, however, been told of its existence by the islanders), the Black Oystercatcher (*Hæmatopus capensis*). Whether this species breeds in Fuerteventura or no, I cannot say, but I was assured it did so on the north coast and on the islands of Lanzarote and Graciosa, and the bird I shot was an old female with well-developed eggs.

Between the high mountains of Jandia and the lighthouse runs a low headland some four or five miles long by one or two wide, all of sand, slightly raised above sea-level, and covered, when we were there, with a very sweet-scented dwarf stock. All the Waders were here in numbers, and I saw a small flock of Sand Grouse and a few Coursers, but the latter were not breeding here. Ospreys were continually in sight, sometimes three or four on the wing together. My delay enabled me to lay in a good store of lizards for my Shrike, which was thriving, and apparently the only passenger on board who did not find the journey irksome. After waiting here for two days the weather improved somewhat, and we beat across to Grand Canary, arriving *five* days after leaving Puerto Cabras, the distance between the islands being fifty-four miles.

II.—*Ornithological Notes on the Island of Gran Canaria.*

By H. B. TRISTRAM, D.D., F.R.S.

DRIVEN by the bitter blasts of our north-eastern coast to seek a holiday under more sunny skies during the three spring months of the present year, the Canary Islands were

happily suggested, as affording not only a balmy climate but perchance some objects of interest to the ornithologist. A voyage of eight days from Liverpool brought us to Las Palmas, the capital of Gran Canaria. We were delayed by having encountered the worst storm of the season in the chops of the Channel; but after passing the latitude of Gibraltar we had summer seas and gentle breezes. To the eastward of Madeira we began to notice large flocks of Shearwaters, chiefly *Puffinus kuhlii*, with other smaller species, while the Gulls and Guillemots entirely disappeared. Early one morning I noticed a number of a small Petrel for an hour or two. These birds I at first took for Wilson's Petrel, *Oceanites oceanica*, but soon saw that they had far more white on the lower back and abdomen than that bird, and that they were probably *Procellaria marina*, which has more than once been taken off Canary. On examining our place on the ship's chart I found that we were not more than twenty miles east of the Salvages, a desert group of waterless rocks, rarely visited, for there is no anchorage, but which are known to be a favourite breeding-place of many species of sea-fowl. I have little doubt but that these birds, which I never saw again until near the same spot on the return voyage, were preparing to breed on the Salvages.

On Sunday morning, March 18, we sighted the distant peak of Tenerife, and had a magnificent view of the island as we steamed along its northern shore towards Gran Canaria, which we reached soon after nightfall. One day sufficed for hotel and other arrangements in that happy land, where custom-houses are unknown and trade is literally free.

The first view of Gran Canaria from the roadstead of Las Palmas is not attractive, the island, which is a solid, almost circular, mass of volcanic rock, about thirty miles in diameter, rising precipitously from the ocean depths to a height of 6000 feet above the sea-level, and having no shore except on the south side, where there is a low desert tract covered with scorïæ. Unlike its greater sister, Tenerife, there is no one central peak, but a central mass of jagged

crests from 5700 ft. to 6300 ft. high. No forest clothes the slopes of Gran Canaria. Every available patch of land is laid under cultivation, and the Spaniards, ignorant of the value of forests, of which there are so few in their motherland, are ruthlessly destroying for charcoal the isolated patches of primæval timber which here and there remain.

Monday sufficed for hotel arrangements and a walk of three miles out towards the interior, on a finely engineered road, over as dreary and rugged a volcanic spur as could be imagined, so soon as I had passed through the gardens and palm-groves which encircle the city. The Spanish Sparrow seemed to monopolize these, save for a few Pallid Swifts rapidly darting about. The open hillside has absolutely no turf or smaller herbage, but is sparsely clad with bushes of various species of *Euphorbia*, the only examples of vegetable life. Birds there were none save several Kestrels, all males, keenly on the look-out for the small black lizards which abound among the cinders, and a few of the Canary Pipit (*Anthus bertheloti*), with which I here made my first acquaintance. I have little to add to Capt. Savile Reid's description of this bird. I rarely saw two together, but individuals are scattered over every part of the country, whatever its character. I found them in all the islands, alike among the cinders, in the fields, on the roadsides, in the open spaces in the forests, and even on the Cumbres, the desert bare plateau above the limit of ordinary vegetation. It is the one bird of the islands which seems to maintain itself everywhere, and is comparatively indifferent to the presence of man, simply running along before the pedestrian and sometimes perching on a tree. Later in the season I found its nest more than once, not differing from that of our Meadow Pipit, and with similarly marked eggs.

The next morning I started with two English friends for a few days in the interior, fearing that I had made a mistake, ornithologically, in choosing Gran Canaria for my début among the islands. We went by diligence to Arucas, among the mountains on the north side of the island. The carretero, or carriage road, was splendidly constructed, and the

country reminded me much of Malta, with its careful terraced cultivation and the absence of wood, except orange and other fruit trees. The next striking feature was the immense number of reservoirs and the carefully constructed channels for irrigation. The Spanish Sparrow, Linnet, and Goldfinch were the only birds noticed. Arrived at the little town, we were set down with our baggage in the market-place and left to our own devices. As my companions knew not a word of Spanish, and I little more than they, we felt rather forlorn. However we soon found a man who volunteered to take our baggage on his donkey to Firgas, the village which we proposed to make our headquarters for two or three days; it was only a two hours' walk, across a well-cultivated, irregular, upland plain. Berthelot's Pipit was the first Canarian specimen I procured in this walk, then the Common Bunting, which abounded, uttering his spluttering note from the stems of the asphodel. I put up a Norfolk Plover out of shot, and vainly stalked it for half an hour.

At Firgas, finding no fonda to receive us, we were at last taken in by a peasant, whose quaint cottage possessed an upper storey and a balcony, and whose wife fortunately had been in service and was a good cook, while our host professed to know well the Barranco de la Virgen, or Virgin's Ravine, which I intended to explore the next day. Our quarters were clean and free from vermin, as were all I experienced in all the islands, with but one exception.

Next morning, with my host for guide and porter carrying my provisions and botany-box, I started at daybreak for the barranco, my friends making another expedition to the Pico Osorio. Half an hour brought us to the edge of the barranco, into which we descended by a breakneck path. The splendour and novelty of the flora in the sides of the cliffs were absolutely bewildering, but I must confine myself to the birds.

I soon found that if there were neither rarities nor abundance, there was variety enough to satisfy the keenest naturalist. The Egyptian Vulture was never out of sight.

Indeed we had seen numbers on the day before from the suburbs of Las Palmas onwards. The Buzzard was frequently to be observed, and I had hardly begun to descend the steep path when I noticed a pair of Falcons on the crest of the cliff on the opposite side of the glen. The male was in the act of treading. By the aid of my field-glasses I scrutinized them very closely. They looked to me of a much lighter russet than our ordinary Peregrine, and I fancied I might have before me *Falco barbarus*. But I afterwards found a pair in the Museum of Las Palmas, shot in this gorge, which were undoubted Peregrines, though of a very reddish hue. At any rate the Peregrine, for which Canary was once famous, is not yet quite extinct. Kestrels here abounded, but their nesting-places were hopelessly out of reach. I shot a male, which, like all those subsequently obtained, was small and very much darker than our English specimens; the wing is an inch shorter and the bill very much smaller than in European or Asiatic specimens. Its food seems to be almost exclusively lizards. Field-mice are unknown, and the small birds are far too few to maintain the population of Kestrels.

Arrived at the bottom of the barranco, where is a scanty perennial stream, the most conspicuous bird was the Grey Wagtail, perhaps the most numerous bird of Gran Canaria, encouraged by the number of reservoirs, at each one of which there is sure to be a family of these charming birds, perfectly tame and fearless. By the side of a pool formed by the little stream under a group of trees a number of Wagtails were disporting themselves. In a book recently published on the Canaries, and in which is a very good engraving of this charming spot, it is stated that flocks of Canaries inhabit it, and may be seen drinking at the water's edge! At any rate the Wagtail has as much yellow on its plumage as the wild Canary. However rich botanically, the barranco did not repay ornithologically, and the Black-cap was the only other species I obtained. My guide, however, informed me that he knew where I might find "Palomo Turquese," the Trocaz Pigeon, which he distin-

guished from the Blue Rock Pigeon, of which we had seen many in the cliffs above us. After working up the glen for three hours, we clambered out on the opposite side, and emerged on what is certainly the richest piece of Gran Canaria,—Doramas, not a village, but a district of scattered houses and farms, with lovely pathways shaded by laurel trees, Indian fig, and various other non-European trees, to me then unknown. At the further end of Doramas is a fragment of primæval forest of laurel trees, and here we hoped to find the “Palomo Turquoise.” We gradually ascended till we reached a height of 4000 feet on the side of the Pico de la Virgen. In the wood I had a glimpse of two Pigeons which passed over us, and which the guide exclaimed were the “Turquoise.” They were not the Rock Dove, and certainly had not the whitish tail of *Columba laurivora*, which is very conspicuous in flight, and with which I fortunately became well acquainted elsewhere. The extremity of the tail was dark, but more than this I cannot aver. On another occasion I got a better view of a solitary Pigeon of the same species in a patch of laurel not far from Doramas.

Both my guide at Doramas and another mountaineer whom I found near the Pinar del Pajonal professed to be well acquainted with the Turquoise, and stated that while the laurel-forest existed it was common. But the Spanish Government unfortunately rewarded a hero of the Cuban war by a grant of this crown-forest, and he naturally enough at once proceeded to cut down all the timber and cultivate the estate. Now both the known Pigeons, *C. bollii* and *C. laurivora*, live principally, if not almost exclusively, on the fruit of laurel trees; small wonder, then, that Turquoise has disappeared along with his food! But the problem remains unsolved, was the Turquoise of Gran Canaria a distinct species, or was it *C. bollii* of Tenerife and Gomera? Probably the latter. But we have not yet ascertained the species of the island of Palma; and should this latter prove distinct, the Pigeon of Gran Canaria may have been so likewise, and be on the verge of perishing, like the avifauna of Rodriguez and Mauritius, unwept, unhonoured, and unsung.

In the glades of Doramas I obtained my first Blackbird, which is not nearly so common as in Tenerife, and is more shy. Nor have I observed it, as in the latter island, lower than about 2000 feet, while in Tenerife it is found from the shore up to 4000 feet. Though no doubt specifically identical with our familiar friend, yet there is a tendency to become what some of my friends would term an incipient species, especially in the direction of equalization of the sexes. After examining a very large series in the British Museum and elsewhere, I find no approximation to the male plumage in the Canary female examples which I cannot match elsewhere; but in the one case it is exceptional, in the other it is constant.

Proceeding onwards, at the edge of the forest I heard a note, resembling that of a Chaffinch, but more varied and powerful, and ending with a sustained trill. On the extremity of a branch was perched the musician (*Fringilla tintillon*). In the course of half an hour I secured four specimens, three males and one female. They did not appear to have as yet commenced the duties of nidification. April and May are the usual time for the nesting of this Chaffinch. Unlike the Pipit, the Tintillon has a very limited perpendicular range. Neither in Canaria, nor in Tenerife, nor in Gomera did I ever find it lower than 2000 feet, and it is commonest at the edge or in the opens of the forest belt, from 3000 ft. to 4500 ft. in altitude. The call-note, nest, and eggs are identical with those of our Chaffinch, but the eggs run a trifle larger.

I see that Mr. Sharpe, in his British Museum Catalogue, endeavours to discriminate between the Tintillon of Madeira, Azores, and Canaries, making them three subspecies. On examining, however, the series in the British Museum, I found that the distinctions are scarcely borne out by them; and my own series presents examples from the Canaries corresponding to all three subdivisions in the Catalogue. The frontal band in one of my Azorean specimens is more distinctly marked than in any of the Canarians, but not sufficiently so as to necessitate separation; while, as to the colour

of the back, I obtained in the same district and in the same week specimens with the back olive-yellow to the neck, with the back slaty blue to the upper tail-coverts, and with the back half slaty blue and the lower half olive-yellow. Besides these I shot a specimen in Gomera on the 9th of May which has the centre of the back, between the slaty blue and the olive-yellow, reddish brown, the exact hue of the back of our Chaffinch. Yet in the same forest I shot others without a trace of this hue, but olive-yellow nearly to the neck. It is impossible to attribute this variation to seasonal change, as all my specimens are breeding birds, and all were obtained between the middle of March and the 12th of May. Nor can we suppose that age has much to do with the matter, when out of fourteen Canarian male specimens I have examples of seven different proportions in the distribution of the colours of the back. Again the under surface varies in like fashion from the palest salmon-colour to a dark brownish pink. The specimens (three) from Gomera are the darkest on the under surface, darker even than Madeiran birds. But in Gran Canaria itself I obtained dark- as well as light-breasted examples. The only conclusion at which I can arrive is that *Fringilla tintillon* has by no means made up its mind as to what-coloured livery it shall wear, but is resolved to assert the rights of the individual, and to exercise freedom of choice, though very possibly in lapse of time and by isolation the fashions may become stereotyped differently in different islands, and that Gomera will adopt a deeper-dyed cloak than even moist Madeira.

In the hedgerow timber of Doramas I obtained a pair of Chiffchaffs. This is one of the most abundant species in all the three islands I visited, and, like the Pipit, is found in highlands and lowlands alike, equally common in the sugarcane plots, the hedgesides, the gardens, and the dense forest glades. It is, moreover, a constant resident, not even migrating up and down the hills; for its food in the evergreen verdure of the Canaries is equally abundant everywhere at all times of the year. I was surprised to hear a note quite different from that of our Chiffchaff, and had no idea, until I picked it up, that the first specimen I shot, and to which

I had been attracted by its note in the top of a laurel tree, was a Chiffchaff. I then noticed its yellow legs and feet, and though I have taken a few specimens with rather darker tarsi, I never found one with dark brown tarsi approaching our bird in intensity of colour. The eggs do not differ from those of our Chiffchaff, and the architecture and lining of its domed nest is the same. Why it should use such a profusion of feathers for the lining in so warm a climate I do not pretend to explain. But I never heard of the nest being placed on or near the ground. All those which I secured, by the help of boys, were in the crowns of palm trees, and one high up in a laurel tree. I did not succeed in obtaining any nests in the forests of Teneriffe and Gomera, where the bird was extremely abundant, but always resorting to the higher branches of trees, and many a specimen I brought down fancying I had got a Goldcrest. Its song consists of four notes ending in a long trill; but later in the season one heard more frequently the "chip chip" of our own bird, often interjaculated between the staves of the longer refrain. Its wing-formula also differs from that of the European *Phylloscopus rufus*. While our bird has its third and fourth primaries longest and equal, and the second intermediate between the seventh and eighth, though sometimes, but rarely, nearly equalling the sixth, the Canarian bird has always the fourth and fifth longest, and the second shorter than the eighth. This holds good in all the twelve specimens I have examined, and from all three islands of Canaria, Teneriffe, and Gomera. I have therefore no hesitation in claiming for this bird specific rank, and propose to name it

PHYLLOSCOPUS FORTUNATUS, sp. nov.

Ph. *Phylloscopo rufo* (Bechst.)=*Ph. collybitæ* (V.) simillimus, sed tarsis et pedibus pallide flavidis: remigibus quarto et quinto, nec tertio et quarto, longissimis: et remige secundo octavo brevior.

Hab. Insulæ Canarienses.

Heading up the valley near Valleseco I returned towards Firgas through a very rugged but open and richly cultivated country. The slopes were generally terraced, and the bright

call of the Quail resounded from every field. But the crops, chiefly of Indian corn and French beans, were too far advanced for us to walk through them; and though the Canarians are, of all people in the world, the most tolerant of trespassers, I could not venture to try to walk up the game, which, indeed, without a dog, would not have been a very successful enterprise.

A Red Kite (*Milvus ictinus*) obligingly passed over my head and gave me the opportunity of securing a very fine female specimen which had not yet bred. The Kite, though pretty generally distributed, so that one could seldom be out for a day without seeing one, is by no means abundant in individuals, and seems to feed here exclusively on offal. It is a migrant, and retires during the winter, while the Buzzard remains.

Up to this time, though I had frequently seen the Linnet and the Goldfinch, I had not yet found the Canary bird, but at length secured one of a pair sitting in a peach-tree overhanging the path. The Canary is certainly much scarcer in Canaria than in Tenerife or Gomera. In fact it was not easy to get more than one or two in a day's ramble, while in the other islands one might without trouble secure more in a morning than I should care to skin in a day.

In Canaria, though it descends lower than the Tintillon, I never saw it, as I did in Tenerife, near the sea-level; but I was told that in winter it comes down in small flocks to the coast. I often saw Canaries feeding along with Linnets. In the other islands we found in May large flocks of the national bird above the forests, among the pine trees, at a height of 5000 feet. They appeared to be chiefly birds of the year. Their song is identical with that of the domesticated race, or perhaps finer. I listened to a singing-match between a Canary and a Linnet in two neighbouring trees, and the superior power and richness of the notes of the former were indisputable. Its habits, as might be expected, hardly differ from those of the Linnet, excepting that it more affects trees and perches higher. The nest is neat and Linnet-like, abundantly lined with goat's hair. A

thriving trade is carried on at the Port with the passengers of the African and New Zealand steamers in yellow Canaries, which fetch a fancy price, as being the "real thing." I was amused to find these birds priced at from 3 to 5 dollars, while the real native, perfectly tame and singing as well as the other, could be had for half a dollar.

My only other capture of interest on this my first day's outing was *Cypselus unicolor*, a flock of which graceful bird were skimming low as the evening set in. This Swift has a different flight from that of *C. apus*, more gliding, and is very silent on the wing. Parties may be seen from sunrise to sunset systematically hunting, generally sweeping laterally over the upland plains or along the face of the steeper cliffs, and returning in about an hour to the same spot. At mid-day I have noticed them at the height of 5000 feet, but towards evening they descend, though rarely to the coast-line. Their roosting- and nesting-places are in cliffs, generally from one to two thousand feet above the sea. In this respect they differ from *C. pallidus*, which is also very numerous, but which particularly affects the coast-line, and which I never saw at any great height inland. So far as I could ascertain, both species are permanent residents, *Cypselus unicolor* certainly is so.

Such were my captures for my first day's work in Gran Canaria; and though it cannot be looked on as a "birdy" country, I had no reason to be dissatisfied with a bag which it required a long day's work to skin, and which added three local species to my collection.

We returned to Las Palmas the next day by a mountain-path on foot, a seventeen-miles walk, with fine rugged scenery, grand in spite of the absence of forest, and passing many of the cave-dwellings of the ancient Guanches, the aboriginal and civilized inhabitants who were dispossessed and too often brutally slaughtered by the Spaniards.

I added a few specimens to my bag on the way, among them the Short-toed Lark (*Alauda brachydactyla*), which occurred on the barest and most rugged mountain-sides, and which is one of the few birds inhabiting Gran Canaria, but

not found, so far as I am aware, on any of the other western islands. Mr. Meade-Waldo met with it in Fuerteventura, but neither he nor I in Tenerife or Gomera. Webb and Berthelot do not notice it. In Canaria it is far from numerous, though the shepherd boys know it and distinguish it from the Pipit. The Hoopoe frequently made his bow to us on the top of a boulder. He is only a spring and summer migrant, but very abundant on all the islands during the season.

One of my most interesting expeditions was a ramble of four days to the south of the island, returning over the highest mountain-passes in the very centre, back by San Mateo to Las Palmas. We drove by the coast to Aguimes, near the S.E. corner of the island, where we had wretched quarters in a loft, swarming with vermin, the only comfortless night I experienced in any of the islands. On the way, near Telde, I made acquaintance with an old Algerian and Syrian friend, the Spectacled Warbler, which seemed to be just returning to its summer-quarters. After this date it occurred everywhere in suitable localities, and I secured specimens in all three islands. It does not ascend very high, but inhabits the low scrub up to about 2500 feet, affecting especially the dry hill-sides and the Euphorbia bushes, in which it builds close to the ground. When we reach the higher elevations its place is taken by the little skulking *Sylvia melanocephala*, not so easily seen though often heard. Webb and Berthelot notice the Spectacled Warbler, under the name of *Sylvia passerina*, as common in all the islands, and give a very accurate description of its habits and nidification. Subsequent writers have identified Webb and Berthelot's *S. passerina* with the Subalpine Warbler, *S. subalpina*, Bonelli (*cf.* Ibis, 1872, p. 175), and have given the latter as inhabiting all the islands on their authority. No one, however, has as yet found the Subalpine Warbler in the group, and it is impossible that Webb and Berthelot could have overlooked the Spectacled, even had not their description been unmistakable. We may therefore eliminate the Subalpine Warbler from the Canary list.

I also noticed three Common Swallows skimming along the Barranco at Telde, and afterwards an occasional solitary specimen might be seen over the gardens round Las Palmas. But the Swallow and House Martin are only spring stragglers. The islands are out of their line of migration, and the few wanderers who may have been driven thither do not generally remain more than a day or two. I noticed a small flock of House Martins hunting down on the mountain-side; but they were gone in the evening, and I never met with a Martin elsewhere. A Swallow which I obtained was of our common English type (*Hirundo rustica*), with the pale lower parts; but I saw one in the hands of the Orotava bird-dealer about as dark as *H. savignii*. Mr. Godman found the Swallow breeding in Tenerife, and, in contrast with its accidental appearance in Canaria, I noticed it daily and in some plenty in Teneriffe.

From Aguimes we made a long day's ramble by Sardina across a desolate volcanic plain towards Maspalomas, the southern point of the island. Our plans did not allow us to spend an additional day here; but I was not aware of what I afterwards discovered, that on the desert-tract before us is the home of the Trumpeter Bullfinch (*Pyrrhula githaginea*) and of the Cream-coloured Courser (*Cursorius gallinaceus*), of both of which specimens are in Las Palmas Museum, obtained near Maspalomas. The ground is admirably suited for them, and also faces the island of Fuerteventura, which is here in sight, and may be looked on as the headquarters of these desert-loving birds. Numbers of the little Black Swift (*Cypselus unicolor*) were playing over the plain, at a great height; but these, with a few Kestrels and an occasional *Neophron*, were the only signs of bird-life we noticed.

But when, turning again northward under the fine peak of Iataga, we zigzagged up the gorge of Sitio de Arriba towards Tirajana and the Paso de la Plata, with the Pico de las Nieves rising 6300 feet above it, we were indeed rewarded. The scenery was a strange blending of the most savage rocks, everywhere seeming as though the wreck of some convulsion of yesterday, with the richest semitropical

culture, oranges, almonds, and peaches ripening together, and forming the hedges of gardens or plots of peas and other vegetables. Again I got one glimpse of a Falcon. The Buzzard was several times noticed, and the Kestrel was ubiquitous. The Blackcap (*Sylvia atricapilla*) here began to be very abundant, especially in the fruit trees, and I suppose had only just returned. "Capirote," as he is here called, made the narrow Barrancos resound with his music, while in the little open patches of maize or vineyards the Robin and the Blackbird caught up the refrain. We passed on through the villages, or rather little towns, of Santa Lucia and Tiri-jana, perched on the mountain-side, with gushing streamlets bursting on the path-side through the rocks, and carefully utilized for the gardens, while our path was overhung with almond-trees laden with fruit, mingled with oranges, which were only just ripe, for we are here 3000 feet above the sea. We reached the little town of San Bartolomeo at nightfall, 3200 feet above the sea, and (for inns are unknown) called on the Alcalde, and were advised where we might find lodgings. Here we made our headquarters for three days. Our host, a small farmer, was a keen sportsman, and had a well-trained Spanish pointer. He was delighted to accompany me, and was ready to promise every bird after which I made enquiry, especially "Palomo Turquese." Our first day's work was not encouraging. My guide insisted on working the lower slopes of the mountain just on the edge of the line of cultivation. Hoopoes, Blackbirds, and Black-caps were plentiful. The Tintillon was conspicuous by its absence. There were a few Quails; but I soon found that Don Lorenzo's one idea was to secure French Partridges when his dog pointed them, by potting them before they began to run; and with perdiche in view, he could not understand my looking after "Pajari" or dickybirds. I may here mention that the Quail, which is very numerous (though I doubt whether even Mr. Godman himself could equal his feat in the Western Azores and shoot seventy couple in a day), is declared by the natives to receive large additions to its numbers in spring. I am inclined to doubt this, but to

attribute the belief rather to the bird exercising its vocal organs more lustily at this season ; because all the Quails I have seen here appear to be of the small dark-coloured race found in South Africa, although even darker than the Cape specimens. The wing is fully .25 inch shorter than in British or Syrian specimens, but exactly the same as in Natal and Cape specimens. Not only is the throat-patch black, but the dark chestnut breast is blotched with black patches amid the fine white striæ. I am quite sure our friends across the Atlantic would make the Canarian a very good subspecies at least.

But the Partridge is yet more distinct. It is curious that there should have been such uncertainty as to the distribution of this species. Webb and Berthelot state that the Barbary Partridge (*Caccabis petrosa*) is found in Canaria, Tenerife, Gomera, and Hierro, and make no mention whatever of *Caccabis rufa*. There is no doubt that *C. petrosa* is the only Partridge of Tenerife and Gomera (of Hierro I know nothing), but most certainly in Gran Canaria *Caccabis rufa* is the only species known. It is found in small numbers over the whole country, and seems to have a greater facility in adapting itself to all kinds of country than its congener. Thus while in Tenerife and Gomera the Barbary Partridge affects especially the lofty cliffs overhanging the sea, and the rocky declivities high up on the verge of and beyond the limits of cultivation, the other species in Gran Canaria is found from the coast, on the most barren shores, upwards on the cultivated sides of the Barrancos, and even on the mountain-tops, the barren cumbres, where vegetation has almost ceased. Not only is it numerous in the barley- and wheat-fields about San Bartolomeo, but I have put it up in the vineyards near Atalaya, and one day Mr. Meade-Waldo, walking with me, flushed a pair evidently breeding on the barren cinder-hills not a mile outside the city of Las Palmas. I also put up a pair on the side of the Pico de las Nieves at 5700 feet, where there was absolutely no vegetation but a small *Draba* (?), a dwarf crocus, and some lichens, and where we were walking over the snow which had fallen in the

night. I saw for several days just before the close season numbers of Partridges for sale in the market of Las Palmas, and only of this species.

When I first obtained the French Partridge at San Bartolomeo I was struck by the size of the bill, much larger, I thought, than in any specimen I had seen elsewhere. That this was no accidental variation I ascertained by comparing my skin with twenty-nine other birds I found for sale in Las Palmas on the day of my return. All agreed in dimensions both of bill and tarsus, as well as in coloration. On comparison with the series in the British Museum, and with Lord Lilford's and my own, I find the following marked differences. The Canarian bird has a band of reddish brown on the nape and hind neck, brighter than in French and English, but not brighter than in Spanish examples. But whereas in European birds the whole of the rest of the upper parts are reddish brown, in the Canarian the back and upper tail are slaty grey. I have seen an example from Andalusia which is intermediate between the Northern and the Canarian characters. The black collar round the fore neck is very much wider than in European birds. So marked is the distinction that Mr. Goldman felt disposed to describe his specimen from the Azores as a new species, had it not been that it was a wretched and mutilated specimen in moult. But on comparing my Canarian with his Azorean there can be no doubt of their specific identity. But the marked structural distinction is in the beak and tarsi. In French specimens the beak measures 1·33 inch from the gape, and the Canarian 1·82 inch. Depth from the ridge of the culmen: French specimens ·27 inch; Canarian, ·33 inch.

Length of tarsus in French specimens 1·33 inch, Canarian, 1·82, while both bill and tarsus are comparatively far more massive in the insular bird than even their measurements would show. I propose, therefore, to distinguish the latter as

CACCABIS RUPA, var. *AUSTRALIS*.

C. rostro quartâ parte robustiore et longiore quam in C. rufâ: tarsi robustioribus et dimidio pollicis longi-

oribus: dorso cinereo, nec rufescenti-fusco: fasciâ nigrâ circum guttur latiore quam in *C. rufâ*.

Tarsus long. 1.82 poll. Rostrum a culmine ad imum .33 poll., long. .98 poll.

The next day I started early with Don Alfonso to explore the Pinas del Pajonal on the S.W. side of the central mountain mass, where we might possibly meet with the "Turquese." We had to climb by a zigzag path, sometimes a mere niche cut out of the side of the cliff, till we reached the crest of the pass, which opened on to the wide Pinas or Pine-forest. We were standing on a niche in a narrow ridge not 100 yards wide. Nothing could be more startling than the sudden change of scene. Turning round to look at the country we had left we saw a richly cultivated district, with orchards of almond-trees creeping to the very base of the cliffs 1100 feet below us. Before us was spread a wide basin, or rather a valley with a narrow opening at the further end, giving a glimpse of the western ocean; and the whole basin, from the crest of the enclosing mountain downwards, dotted, rather than covered, with small Canarian pine-trees, and here and there an ancient survivor of the primæval forest towering like a giant among the Liliputians.

The Spaniards have recklessly destroyed the forest, chiefly for charcoal, and have not taken the trouble to replant it, leaving only the saplings which twenty years ago were too small for timber. Happily they are thick enough to form a forest in the course of another century if allowed to remain so long. A fine barranco, fed by many tiny rills and cascades from the mountain-sides, drains the basin westward. I saw at a glance that my hopes of the Pigeon were gone, as "Turquese" does not resort to pines, and cover there was none. But I was surprised to see, at the very summit of the pass, a pair of Tits (*Parus teneriffæ*) flitting almost Creeper-like among the little bushes on the face of the cliff. I secured one of them, the other falling into an inaccessible cranny above our heads. We were here 4300 feet above the sea. This was the highest point where I noticed the Titmouse, but it occurs in small numbers at all

the lower elevations down to the coast-line. I had already obtained it among the chestnut-trees near San Mateo ; but it is not nearly so numerous in Canaria as in the other islands, in both of which I procured specimens. Some are absolutely without any trace of white edgings to the secondaries and greater wing-coverts, so conspicuous in Algerian birds, but most of them have traces of the white tips more or less distinct, and in one specimen, procured by Mr. Meade-Waldo in the eastern island of Fuerteventura, the white extremities are larger than in Algerian specimens, while, as might be expected in that desert soil, the whole blue plumage is much paler than in any others I have seen, continental or insular.

We spent the whole day in the pine-forest, but with a poor harvest, the only bird of interest I secured being the Great Spotted Woodpecker, identical with our British bird, and not, as has been suggested, *Picus numidicus*. Teneriffe examples are identical with Canarian. But in the former island, I believe that on more than one occasion I saw in the laurel-forest *Picus minor*. I may here remark that there seems to be no evidence whatever that *Parus major* has ever been found in the Archipelago. Messrs. Webb and Berthelot never saw it themselves, and it escaped Mr. Godman's all-penetrating researches.

Our next day's expedition was in a northerly direction from San Bartolomeo by the Paso de la Plata to the Roque del Nublo, the highest crest of Canaria, 6400 feet, and then across the Cumbre down to San Mateo on the northern slope of the central range. If not rewarded ornithologically, we were certainly repaid by the magnificent scenery, which lost none of its grandeur by a fall of snow during the preceding night, which lightly covered the higher peaks. Even here we found the Pipit, the French Partridge, and of course the Raven (*Corvus tingitanus*), while the Little Swift (*Cypselus unicolor*) was disporting itself far overhead. We descended upon Lechuilla, above San Mateo, where begins what has been called the garden of Canaria. The orange mingles with apple, pear, quince, plum, cherry, peach, and almond trees, and here

and there a survival in a noble Canary pine. These orchards abounded in song-birds, the Blackbird, the Robin, and especially the little Blackcap, or "Capirote" as he is called, the favourite songster of the Canarians, while the Chiffchaff was simply everywhere. I never found or saw the black-throated variety of the Blackcap, known from Madeira and described as *Sylvia heinekeni*.

I cannot but think that the Robin of the island is at least an incipient species. It is a permanent resident. All the specimens obtained both by Mr. Meade-Waldo and myself in Canaria and Tenerife are of a richer and darker plumage than European birds, and the red of the breast decidedly deeper, while there is the trace of a white ring round the eye. But in examining a series I notice that some Spanish specimens equal the Canarian in intensity of colour. It is curious, however, that in Gomera, where the Robin is very plentiful and we collected many specimens, all without exception correspond exactly in every particular with British birds. But this is not the only instance in which the avifauna of the little island of Gomera shows a distinct individuality. In some open ground, on our return next day to Las Palmas, I saw the Rock Sparrow (*Fringilla petronia*), now very scarce in the island, and altogether expelled from the towns and villages by that impudent intruder the Spanish Sparrow, which is becoming a perfect nuisance in many places. Happily it has not yet reached Teneriffe, where the Rock Sparrow still utters his ditty unmolested on the eaves and gables of the houses.

I subsequently explored, more or less carefully, the whole of the rest of the island, and I do not think that much remains to be discovered, unless in the way of occasional stragglers. Contrasting this island with its neighbours, we have a pretty fair idea of the result of cultivation and the destruction of forests. The growing scarcity of water may, indeed, induce the Government to encourage the re-planting of the higher mountain-sides, which can never have an agricultural value, and to preserve what forests remain in Tenerife and Gomera.

To my enthusiastic, keen, and accurate companion in the latter islands, Mr. Meade-Waldo, for whom I confidently predict a very high place among our rising field-naturalists, I leave the task of describing the researches, in which he bore the chief part, in the latter islands.

III.—*On the Genus Platalea, with a Description of a new Species from New Guinea.* By W. R. OGILVIE-GRANT.

(Plate I.)

THE head and legs of a Spoonbill recently killed at Port Moresby, S.E. New Guinea, were forwarded by Mr. H. Romilly to Lord Walsingham, by whom these interesting remains were presented to the Natural History Museum. The rest of the body had unfortunately been cut up for eating by the natives before the bird was observed by Mr. Romilly; but the whole plumage is said to have been entirely white, like the head, and to have belonged to a bird hitherto unknown in New Guinea.

That no Spoonbill has ever been recorded from Papua is certain, and at the first glance I believed these remains to belong to the Australian black-faced species, *P. melanorhyncha*, Reich. (*P. regia*, Gould), which it seemed probable might have strayed northwards beyond its usual range; but after a very careful comparison with specimens of the Australian bird of the same age I am convinced that the Spoonbill of New Guinea belongs to quite a distinct species, somewhat intermediate between *P. melanorhyncha* and *P. minor*, Temm. & Schl., from Japan and Formosa.

Before venturing to describe a new species on such fragmentary evidence, more especially as the species of this group are not yet well understood, chiefly owing to the scarcity of material in museums and to the difficulty of procuring specimens, I have made a detailed examination of all the available material both in the Natural History Museum and elsewhere, and have attempted to clearly establish the distinguishing characters of the different species. I trust the results may be of some value to those who are interested in

the Platalean problem. I do not include in my remarks either the Australian species, *P. flavipes*, or the American *P. ajaja*, as I consider them to belong to two distinct genera, *Platibis* and *Ajaja*.

The most recent remarks bearing on the subject before us are to be found in Mr. Stejneger's "Review of the Japanese Birds" (Proc. U. S. Nat. Mus. 1887, p. 275), where an excellent *résumé* of the literature is given, and the several questions to be solved are put clearly before the reader. At the same time I must remark that, although a great admirer of Mr. Stejneger's careful and accurate work, my own investigations have on several points resulted in conclusions quite the opposite to those arrived at by that ornithologist—notably when he says, p. 281, "it is a curious peculiarity of the Spoonbills (at least of the European species) that the very youngest birds have the face more denuded of feathers than the older ones;" and again (p. 284), "to this I would remark that, as already stated, I regard the type of *P. minor* as very young and that the greater extent of naked skin is due to its younger age." Now even supposing, as is probably the case, that all the species of *Platalea* are alike in having the downy young "with nearly the whole face and throat naked" as in *P. leucorodia*, this character ceases to be pronounced after the young birds become feathered; and in *all* the species (always of course allowing a certain margin for individual variation in this most variable group) younger specimens have both the bare skin of the forehead and throat much less developed than in fully adult birds of the same species. In *all* the species the young birds may be distinguished from the adults of the same sex by the following characters—the smaller size (usually), the smoothness and lighter colour of the bill, the smaller area of bare skin both on the forehead and throat, and the black and dark brown colour of the ends of the primary quills and their shafts. In fully adult specimens of the different species with pure white primaries, &c., a number of characters are found common to all at certain seasons, such as the corrugations on the bill, the long crest and the irregular buff-coloured band round the base of the

neck. To the best of my belief these characters are only seasonal and disappear about the end of December; for as shown in a fully adult male specimen of *P. major* (no. 7) there is no visible crest in January, and the bill is nearly smooth. In March a male from Delhi (no. 4) and a female from Egypt (no. 21), both fully adult, have the bill somewhat corrugated and a short crest in quill, and adult male specimens (nos. 5 and 3), procured at Hakodadi in April and Jodhpur in November respectively, have fully developed crests and the bill strongly corrugated. The fully adult females differ from the males only in their usually smaller size; but I believe Mr. Swinhoe to be correct in his surmise that they take considerably longer to attain maturity.

I have to return my best thanks to Dr. Büttikofer, who has been more than kind in supplying me with all required information, as well as in sending a number of water-colour drawings of heads of various Spoonbills in the Leyden Museum, also to Mr. Seebohm, Canon Tristram, and Capt. Shelley, who have been kind enough to send me for examination specimens of *Platalea* from their collections.

Key to the Species.

- A. Forehead feathered almost to the base of the culmen.
 - a. Naked skin of throat and round eyes yellow, on narrow forehead and in front of eyes blackish. Culmen black barred with yellow. Legs black.
 - a'. Smaller; culmen from 7·8–8·9 inches long .. *P. leucorodia*, p. 35.
 - b'. Larger; culmen from 8·2–9·7 inches long .. *P. major*, p. 39.
- B. A considerable extent of forehead above the base of the culmen naked.
 - b. Naked skin of face and throat, bill, and legs scarlet *P. alba*, p. 47.
 - c. Naked skin of face and throat, bill, and legs black or dark purplish brown.
 - c'. Throat naked for a considerable extent.
 - a''. Bare skin of throat extends ca. 2·8 beyond the angle of the mouth, rounded or slightly W-shaped posteriorly, on bare forehead 1·2 beyond base of culmen. Yellow patch on the back of the forehead and largely

- above and somewhat less below each eye.
 Bill black. End of spatule obtusely [p. 48.
 truncated. Larger *P. melanorhyncha*,
b''. Bare skin of throat extends ca. 1·5 beyond
 the angle of the gape, slightly W-shaped
 posteriorly, that of forehead 1·0 beyond
 base of culmen. Slight yellow patch on
 the back of the forehead and below each
 eye. Bill deep black. End of spatule [p. 52.
 rounded. Intermediate *P. intermedia*,
d'. Throat almost entirely feathered.
c''. Bare skin of throat extends 1·2 beyond
 the angle of the gape, strongly W-shaped
 posteriorly, that of forehead extends ·6
 beyond base of culmen. Yellow patch
 below and in a thin line over each eye,
 none on forehead. Bill black. End of
 spatule yellow. Size smaller *P. minor*, p. 54.

PLATALEA LEUCORODIA, Linn.

Western Race. (*P. leucorodia*.)

It is unnecessary to make any remarks on this species, as my reasons for uniting with it *P. major* are fully explained under that heading (p. 39). It seems curious, however, that both the specimens I have seen from Egypt should belong to the Eastern race instead of the European; possibly both forms occur in that country.

The measurements of No. 33 from Massouah are extraordinarily small for a fully adult specimen, and Heuglin states that in this respect all the Red-Sea specimens are alike. I should not be at all surprised if these prove to belong to a distinct race or even species.

The following table (pp. 36–38) contains a complete list of all the specimens which I have been able to examine, with measurements and other details. For the dimensions of those in the Leyden Museum I have to thank Dr. Büttikofer.

PLATALEA LEUCORODIA, Linn.*E Mus. Brit.*

Locality, &c.	Sex.	Culmen.	Wing.	Tarsus.	Crest.	Colour of primaries at tip.	Bare skin of throat measured from angle of gape.	Band at base of neck.
1. South Spain (<i>Lord Lifford</i>). (Skin.)	(♂)	8 (Corrugated; yellow mottled with black, spatule yellow.)	14.0	5.7	4.5	Almost pure white, traces of blackish.	3.4	Bright buff.
2. England. (Stuffed.)	(♀)	7.3 (Corrugated; yellow barred with black, spatule yellow.)	14.0	5.3	4.7	Pure white.	3.2	Bright buff.
3. Devonshire (<i>Col. Montagu</i>). (Skin.)	(♀)	7 (Corrugated; yellow mottled with black except spatule.)	14.2	5.2	5	Pure white.	2.6	Bright buff.
4. South Spain (<i>Lord Lifford</i>). (Skin.)	(♂)	(14) Smooth; brown, becoming almost yellow on spatule.	14	5.1	3.8	Blackish, shafts ditto.	2.8	None.
5. South Spain (<i>Lord Lifford</i>). (Skin.)	(♀)	6.7 Slightly corrugated; black, yellow crescent on spatule.	14	5.1	3.5	Pure white.	2.0	Bright buff.
6. Netherlands. (24. viii. 185.) <i>Salvin & Godman Coll.</i> (Skin.)	♀ jr.	4.1 Smooth; brownish yellow.	12.8	5.3	None.	Half black, shafts black.	2.2	None.

7.	Holland. (17. vii. 61.) Seeborn Coll. (Skin.)	♀ jr.	3·4 Smooth; yellowish orange.	10	5	None.	As above.	1·9	None.
<i>E Mus. Lugdun.</i> (fide Büttikofer).									
8.	Schollevaers Isl., Holland. (5. v. 60.)	♂	8·9 Corrugated; black with yellow cross bars, end of spatule yellow.	15·4	5·8	5·5	Pure white.	3·2	Yellow.
9.	As above. (29. iv. 60.)	♂ (?)	7 As above.	14	5·4	4·5	Pure white.	2·3	Yellow.
10.	As above. (29. iv. 60.)	♀	7·3 As above.	14·2	5·2	4·6	Pure white.	2·1	Yellow.
11.	As above. (29. iv. 60.)	♀	7·3 As above.	14·3	5	4·8	Pure white.	1·2	Yellow.
12.	Leyden. (3. xii. 60.)	♂	7·4 As above.	14·3	6	None.	Black.	1·8	None.
13.	Kralingen. (23. ix. 62.)	♂	6·7 Smooth; yellowish.	14·5	5·6	None.	Black.	2	None.
14.	Leyden. (30. ix. 63.)	♀	5·8 As above.	13·8	4·9	Very short.	Black.	2·5	None.
15.	Leyden. (20. ix. 60.)	♂	4·8 As above.	13·2	4·4	None.	Black.	1·8	None.
16.	Holland. (-. viii. 45.)	♀	6 As above; brown.	14·6	5·8	None.	Black.	1·5	None.

PLATALEA LEUCORODIA (continued).

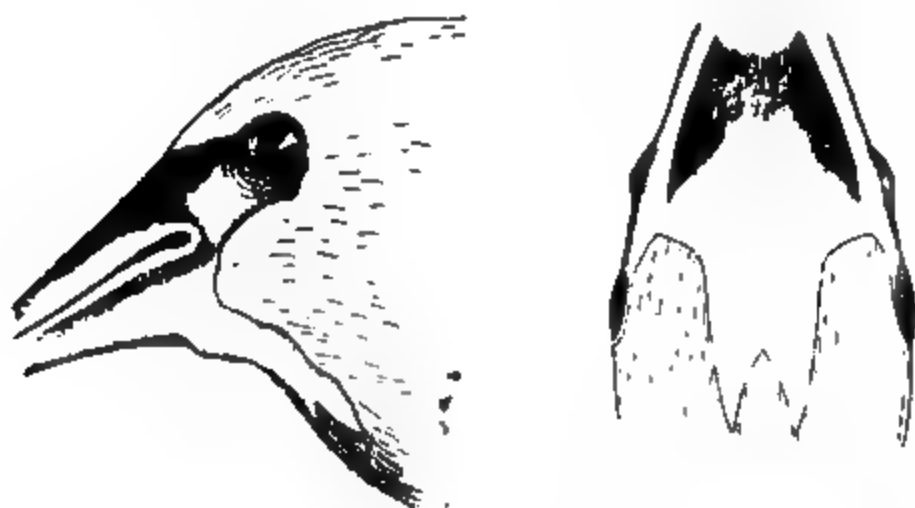
Locality, &c.	Sex.	Culmen.	Wing.	Tarsus.	Crest.	Colour of primaries at tip.	Bare skin of throat measured from angle of gape.	Band at base of neck.
17. Schollevaers Isl., Holland. (10. vi. 58.)	♂	5 Smooth; yellow.	14	5.8	None.	Black.	1.5	None.
18. Krulingen Lake. (3. vii. 61.)	♀	4 As above.	12	5.2	None.	Black.	1.5	None.
19. As above. (27. vi. 62.)	♂	4 As above.	12.7	5.4	None.	Black.	1.2	None.
20. As above. (3. vii. 61.)	♂	3.4 As above.	10.8	5.2	None.	Black.	1.4	None.
21. Near Leyden. (10. vii. 60.)	♂	5.5 As above.	14.5	5.7	None.	Black.	2.5	None.
22. 32. Schollevaers Isl., Holland.	Nestling and other very young specimens, all with bill entirely yellow.							
33. Maccanah, Red Sea. (1882. <i>Hughlin</i> .)	?	6 (Corrugated; blackish, with yellow cross bars and yellow end to spatule.	12.3	4.5	3.3	Pure white.	3.2	None.

The geographical distribution of this species has already been so often recorded that it is unnecessary to recapitulate it here, especially as it is impossible to tell to which race a number of the references must be referred. Whether the European birds ever go to Egypt, I do not know; but both the specimens I have seen from that country belong to the large Eastern form.

Eastern Race. (*Platalea major*, Temm. & Schl.) (Woodcut, fig. 1.)

After examining very carefully a considerable series of Asiatic and European specimens of different ages, the details and measurements of which are given on pp. 42-45, I am certainly inclined to share Mr. Seebohm's opinion, and, in spite of Mr. Stejneger's conclusions to the contrary, I feel convinced that, although somewhat larger, *P. major* cannot be considered specifically distinct from the European *P. leucorodia*.

Fig. 1.



Head of *Platalea major*. ♂.

Fig. 2.



Head of *Platalea minor*. ♂.

Japanese and Chinese specimens appear to be identical with specimens from India and other parts of Asia and Egypt.

The characters found in the length of the bill and tarsus and the extent of the bare skin of the throat are subject to considerable individual variation, each of them becoming more pronounced with the increase of age and differing in males and females, the latter being always considerably smaller, and apparently taking longer to assume the fully adult characters. Mr. Hume ('Stray Feathers,' i. 1873, p. 256) says, "the bills in this species [*P. major*, which he calls *P. leucorodia*] vary very materially in length, even in the same sex; amongst males, for instance, they vary from 8·2 to 9·7." The smaller extent of the throat-patch is put forward as being a distinguishing character between the Japanese birds and *P. leucorodia*, and certainly specimen No. 11 from Yokohama has a very small area of bare skin on the throat, only 1·4 (measured from the angle of the gape), and the same peculiarity is to be found in specimen No. 8, from Oudh, which, though rather a larger specimen, has the throat-patch only 2 inches long, and shows the same W-shaped form posteriorly; while, on the other hand, No. 14 (♀, R. Swinhoe, No. 1, Ibis, 1864, p. 364), from Tamsuy, Formosa, and No. 5, ♂ adult, Hakodadi, have the skin of the throat rounded off posteriorly, like the rest of the Asiatic and European specimens, and the latter has fully as large an area of naked skin on the throat as any of the European specimens I have seen; and Nos. 3 and 4, from Jodhpur and Delhi, have even more, the latter especially (4·1). These differences will be at once seen by referring to the table of measurements below. I believe both specimens Nos. 8 and 11 to be young males, and I do not think any reliance can be placed on the shape of the termination of the throat-patch, which has been suggested as a character in this group, as it may be either rounded off or W-shaped, though usually the former.

Specimen No. 11 (Yokohama), already referred to, is almost identical with the type of *P. major*, though the measurements of the latter are somewhat larger.

The specimens referred to by Taczanowski (Bull. Soc. Zool. Fr. x. p. 476) are clearly not very old birds, having probably

attained their second season. The combination of black ends to the primaries with a considerable crest, described as characters of these specimens, is equally found in *P. leucorodia* (Nos. 1 and 4) from South Spain. Finally, I cannot find any distinguishing character in the width of the rim of the upper mandible between the nasal groove and the edge, a character put forward both by Prof. Sundevall and Mr. Stejneger; for the width appears to vary nearly in proportion to the length of the culmen, which being greater, as already stated, in *P. major*, naturally has a broader rim. Nevertheless, taken as a whole, specimens of *P. major* may generally be distinguished from the European bird by the length of the "neck" of the spatule and, as a rule, especially in immature birds, by the smaller area of naked skin on the throat, always, of course, comparing birds of a nearly similar age.

Through the kindness of Dr. Büttikofer I have received a life-sized water-colour drawing of the head of the type of *P. major* in the Leyden Museum, from which the accompanying woodcut (p. 39) has been taken. By glancing at this and comparing it with that of *P. minor*, shown beneath it, it is more easy to understand why Prof. Schlegel, after receiving a nearly adult specimen of the latter species, obtained by Mr. Swinhoe at Swatow, which in size was almost intermediate between the type specimens, united them under one name, and characterized them as very like *P. leucorodia*, but with the lower part of the throat feathered and the beak brownish.

CHAR.—*Adult* ♂. Exactly similar to *P. leucorodia*, but rather larger, and having the culmen, as a rule, longer, from 8·3–9·7.

Adult ♀. Similar; smaller.

Imm. ♂ & ♀. Throat-patch extending over a somewhat smaller area than in *P. leucorodia* of the same age, and either rounded off (usually) or W-shaped posteriorly.

The following table gives a complete list of all the specimens examined, with measurements and other details. For particulars of those in the Leyden Museum I have to thank Dr. Büttikofer.

**PLATALEA MAJOR, Temm. & Schl.
*E Mus. Brit.***

Locality, &c.	Sex.	Culmen.	Wing.	Tarsus.	Crest.	Colour of primaries at tip.	Naked skin of throat extends beyond angle of mouth.	Band at base of neck.
1. Indus above Sukkur. (26. xi. 71. <i>A. O. Hume.</i>) Hume Coll. (skin).	♂	9 Slightly corrugated; blackish, spatule yellow.	15	6.1	None.	Traces of blackish, shafts with ditto.	3	None.
2. ? (Skin.)	♂	9 Slightly corrugated; black, except yellowish spot at end of spatule.	15	6.2	None.	Brownish black, shafts black.	2.9	Very pale buff.
3. Jodhpur. (5. ix. 68. <i>G. King.</i>) Hume Coll. (skin).	♂	8.5 Corrugated; black, spatule yellow.	15.2	6	ca. 4	Pure white.	3.5	Pale buff.
4. Delhi. (29. iii. 76. <i>C. T. Bingham.</i>) Hume Coll. (skin).	♂	8.4 Corrugated; black, spatule yellow.	14.9 in quill	5.8	1.5 in quill	Pure white.	4.1	Pale buff.
5. Hakodadi. (-. iv. -. <i>Capt. Blakiston.</i>) Seeborn Coll. (skin).	♂	8.3 Corrugated; black, with yellow crescent at end.	15.5	5.8	ca. 6	Pure white.	3.3	Pale buff.
6. Indus above Sukkur. (28. xi. 71. <i>A. O. Hume.</i>) Hume Coll. (skin).	♂	8.3 Slightly corrugated; blackish, spatule yellow.	14.5	6.1	None.	Traces of blackish, shafts with ditto.	3.1	None.
7. Ajmere. (8. i. 78. <i>G. King.</i>) Hume Coll. (skin).	♂	8.3 Slightly corrugated; brownish black, spatule yellow.	14.5	6.1	None.	Pure white.	2.8	None.

8. Oudh. (- xii. 73. <i>W. E. Brooks.</i>) Hume Coll. (skin).	(♂)	8.3 Smooth; mottled brown and yellow.	14.8	5.9	None.	Considerable amount of black- ish, shafts black.	2 W-shaped.	None.
9. Chenab, near junction with Indus. (9. xii. 71. <i>A. O. Hume.</i>) Hume Coll. (skin).	♂	8.2 Smooth; brown, spatule yellow.	14.8	6.1	None.	As above.	2.4	None.
10. India. (<i>Dr. Burn.</i>) (Stuffed.)	(♂)	7.5 Almost smooth; brown, becom- ing yellow on spatule.	14	5.5	None.	Brown, shafts black.	ca. 2	None.
11. Yokohama. (- xi. 80.) Seebohm Coll. (skin).	(♂)	7.5 Slightly corrugated; brown, becoming yellow on spatule.	14.8	5.4	None.	Dark brown, shafts black.	1.4 W-shaped.	None.
12. Seoni. (1874.) Hume Coll. (skin).	♀	7.4 Somewhat corrugated; black, in yellow spot at tip.	14.1	5.5	None.	Pure white.	3.5	None.
13. Etawah. (1863.) Hume Coll. (skin).	(♀)	7.3 Smooth; brown, becoming yellow.	14.4	5.4	None.	Considerable amount of brown, shafts black.	2.5	None.
14. Tamsuy. (7. iii. 64. <i>R. Sinhoe.</i>) Seebohm Coll. (skin). (Ibis, 1864, p. 364, No. 1.)	♀	7.2 Smooth; brownish yellow.	14.2	5.5	None.	Faded brown, shafts black.	1.9	None.
15. Nepal. (<i>B. H. Hodgson.</i>) (<i>P. pyrrhops</i> , MS.) (Skin.)		7.2 Slightly corrugated; brown, yellow spatule.	14	5.4	None.	Brown, shafts black.	2.1	None.

PLATALEA MAJOR (continued).

Locality, &c.	Sex.	Culmen.	Wing.	Tarsus.	Crest.	Colour of primaries at tip.	Naked skin of throat extends beyond angle of mouth.	Band at base of neck.
16. Delhi. (29.iii.78. <i>C.T. Bingham.</i>) Hume Coll. (skin).	♀	7.2 Nearly smooth; black, spatule yellow.	14	5.1	None.	Blackish, shafts black.	2.5	None.
17. Sambhur. (27.viii.73. <i>R.M. Adam.</i>) Hume Coll. (skin).	♀	7.1 Corrugated; black, yellow crescent on spatule.	14.6	5.6	ca. 5	Pure white.	3.4	Bright buff.
18. Mesopotamia. (<i>Commander Jones.</i>) (Skin.)	♀	7.1 Smooth; brownish yellow.	13.8	5.4	None.	Brown, shafts black.	2.4	None.
19. Jhansie. (- iv. 69.) Hume Coll. (skin).	(♀)	7 Smooth; brownish, becoming yellow on spatule.	14	5.3	None.	Considerable amount of brown, shafts black.	2.1	None.
<i>E Mus. H. B. Tristram.</i>								
20. Boulac, Egypt. (15. iii. 68. <i>H. B. Tristram.</i>) (Skin.)	♀	7.1 Corrugated; black, barred with yellowish; spatule yellow. Spatule unusually narrow (1.6 in.).	14.7	5.2	2.8 in quill	Pure white.	2.2	Bright buff.

E Mus. G. E. Shelley.

21. Egypt. (18. iii. 70. <i>G. E. Shelley.</i>)	(♂)	8·4 Almost smooth; yellowish brown, end of spatule yel- lowish.	14·8	6	Slight, ca. 1	With consider- able amount of dark brown, shafts black.	2·2	Faintly indi- cated by buffy tinge.
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E Mus Lugdun. (fide Büttikofer).

22. Japan (<i>type</i>). (<i>Dr. Brüger</i>).	♂	9 Smooth; yellowish brown.	15·4	6·1	None.	Black.	1·7	None.
23. India.	(♂)	8·7 Smooth; black, with yellow patch.	15	5·4	None.	Black.	2·6	None.
24. Darjeeling, 1874.	(♂)	8·5 Corrugated; black, with yel- low patch.	14·6	5·7	1·6	Pure white.	3	None.
25. India.	(♀)	7 Corrugated; black, barred with yellow; spatule yellow.	14	5·4	4·5	Pure white.	2·7	Yellow.
26. Bengal.	(♀)	7 As above.	14	5	3	Pure white.	2·5	None.
27. Darjeeling, 1874.	(♀)	7 As above.	14·5	5·3	1	Pure white.	2·7	None.
28. Darjeeling, 1874.	(♀)	6·7 As above.	13·6	4·9	1·3	Faintly tipped and edged with black.	2·7	None.

Geographical Distribution of P. major.

Type from *Japan* (Temm. & Schl. Fauna Japon., Aves, p. 119, pl. 75): *Hakodadi* (Whitely, Ibis, 1867, p. 204): *Amoor* (Radde, Reis. in S. O.-Sibir. ii. p. 345). *Lake Khanka* (Przewalski, Voy. dans le Pays Ussuri, no. 188). Occasional winter visitant to *Amoy* (Swinhoe, Ibis, 1860, p. 65).

A pair or more of large Spoonbills were frequently to be seen, the winter through, on the *Tamsuy River* (*Formosa*). From their size I take them to be of this species, but I did not obtain any specimens (Swinhoe, Ibis, 1863, p. 417).

♀, No. 1. *Tamsuy harbour* (Swinhoe, Ibis, 1864, p. 364).

I saw Spoonbills at *Bampúr*, in Balúchistan; they are, of course, also found on the shores of the *Caspian* (Blanford, 'Eastern Persia,' ii. p. 298).

Sutlej River, Mooltan (Hume, Str. F. 1873, p. 106). Alike along the banks and sand-banks of all the greater rivers of the *Punjab*, and of the *Indus*, in *Sindh*, the Spoonbill was repeatedly met with in large flocks (*id.* p. 256). Plentiful on the rivers of the *Punjab* during winter (Adams, P. Z. S. 1858, p. 507). *Eastern Narra*: Eggs taken in October and November (S. Doig, Str. F. 1879, p. 372). *Kattiawar*: Not uncommon a few miles *West* of *Limree* (Lloyd, Ibis, 1873, p. 419). Small tanks and reservoirs at *Jodhpur* (Hume, Str. F. 1878, ii. p. 67). *Mt. Aboo* and *N. Guzerat*: Common, associating in flocks in all the marshes and rivers (Hume, Str. F. 1876, p. 24). *Sambhur Lake* and its vicinity: I have met with small flocks of the Spoonbill during rains only (Adams, Str. F. 1873, p. 399). *Lucknow*: Common during cold weather (Reid, Str. F. 1881, p. 77). *Oudh* and *Kumaon*: Common in flocks at the end of the cold season (Irby, Ibis, 1861, p. 244). *Nepaul Terai* (fide Hodgson, in Gray's Zool. Misc. p. 86). *Eastern Bengal, Jheel, N.W. of Dacca* (Simson, Ibis, 1882, p. 93). *Lower Bengal* (Blyth, Ibis, 1867, p. 173). *Calcutta market*, may be seen occasionally (Hume, Str. F. 1878, ii. p. 49). *Central India*: Very common (Swinhoe & Barnes, Ibis, 1885, p. 136). In the *Mahanadi*, close to *Cuttack* (*Sambulpur* and *Orissa*) (Ball, Str. F. 1876, p. 237). *Orissa*, north and south of *Mahanadi* (Ball, Str. F. 1878, ii.

p. 231). *Raipur* (Hume, *l. c.*). *Godavery River* : In flocks and occasionally on the smaller streams. Breeds during the month of April (Burgess, P. Z. S. 1855, p. 71). *Khandeish* : Winter visitant, not common anywhere (Davidson, Str. F. 1881, p. 324). *Deccan* (Fairbank, Str. F. 1876, p. 264) : Common and breeds in April and May (Davidson & Wenden, Str. F. 1878, ii. p. 91). *S. Konkan* : A straggler (Vidal, Str. F. 1880, p. 91).

Ceylon. Not an uncommon bird in the south-east of Ceylon and in the tank-districts of the northern half of the island (Legge, 'Birds of Ceylon,' p. 1097).

Egypt and Nubia. Very plentiful throughout. It may constantly be seen in flocks on the sand-banks of the river and in the great marshy lakes of Lower Egypt and Fayoom (Shelley, 'Handb. B. Egypt,' p. 264). Abundant, but very wild and difficult to shoot (Taylor, *Ibis*, 1859, p. 51).

The above references are only those which I can confidently refer to this species ; all the doubtful ones have been omitted, as it is frequently quite uncertain whether the specimens mentioned by the different writers about Japan and China belonged to the above or to *P. minor*.

PLATALEA ALBA, Scop.

Prof. Milne-Edwards and M. Grandidier, while writing on this Spoonbill (*P. tenuirostris*, 'Histoire de Madagascar, Oiseaux,' ii. p. 524), remark, in a footnote, that it is by accident that ornithologists up to the present time have regarded the Madagascar (and African) species as identical with the White Spoonbill and the Crested Spoonbill, of which Sonnerat gives descriptions in his 'Voyage à la Nouvelle Guinée' and his 'Voyage aux Indes et en Chine' (*Platalea cristata*, Scopoli, and *P. luzoniensis*, Bonaparte) ; for, contrary to what people have thought, a Spoonbill is found in Luzon, M. Baer having killed one there, which M. Oustalet has had in his hands, and which differs from *P. tenuirostris*.

The above-mentioned authors do not mention to what species the bird in question belonged, nor do they tell us that it was identical with Sonnerat's species. Their argu-

ment appears to fall short of the question, which is, Were Sonnerat's birds obtained in Luzon or Africa? Now, granting that the occurrence of Spoonbills in the Philippines should have been somewhat unexpected, as no specimen had been recorded since Sonnerat's time (his examples were said to have been obtained in Luzon before the year 1776), there is no apparent reason why previous writers should have been mistaken in identifying Sonnerat's species with the African and Madagascar bird. After a careful investigation of the question, one can only agree with Prof. Schlegel's decided opinion ('Mus. Pays-Bas, *Ciconiæ*,' p. 22) that there can be hardly a doubt that Sonnerat described his *Spatule blanche* and *Spatule hupée* from a young and an adult specimen of the so-called *P. tenuirostris*. That M. Baer's bird should differ from this species, as stated by M. Oustalet, is a further argument in favour of this view, and his bird most probably belonged to *P. minor*.

I have, unfortunately, been unable to examine any specimens of Spoonbills from Luzon.

PLATALEA MELANORHYNCHA, Reich. (Plate I. figs. 1, 1A, 4, & 5.)

This species is apparently confined to the Australian continent, though one or two straggling instances have been recorded, with more or less certainty, of its occurrence in New Zealand, and there is a fully adult specimen from Timor in the Leyden Museum, presented by Governor Lansberge. It is to be distinguished from the following species by several characters, as already shown in the Key; but of course these distinctions are only clearly marked in nearly mature or adult specimens; and young and immature Australian specimens might be easily confounded with specimens of *P. intermedia*, though never with *P. minor*, in which the nearly feathered throat is always a strongly marked character. Yet the obtusely truncate shape of the spatule will, I believe, always serve to distinguish this species from *P. intermedia* with its rounded spatule.

CHAR.—*Adult* ♂ & ♀. Naked skin of forehead and throat





black; bill black or transversely barred with purplish black. A yellow triangular patch at the back of the forehead and above and below the eye, less marked below. The plumes on the forehead do not advance to above the posterior margin of the eye, and are distant ca. 1·2 from the base of the culmen. The naked throat extends from 2·3–2·8 beyond the angle of the mouth, and is either rounded or slightly W-shaped posteriorly. End of spatule obtusely truncate. Primaries white.

Imm. Naked skin of forehead and throat black; bill brownish black. Yellow on forehead and above and below the eye indistinct or absent. The plumes on the forehead advance to above the middle of the eye within about ·6 of the base of the culmen. The naked throat extends about 1·5 beyond the angle of the mouth and is W-shaped posteriorly. Tips of primaries blackish.

The following table (pp. 50, 51) gives a list of all the specimens I have been able to examine, with measurements and other details. For those in the Leyden Museum I am indebted to the kindness of Dr. Büttikofer.

Geographical Distribution of P. melanorhyncha.

Timor: Adult specimen in the Leyden Museum, presented by Governor Lansberge.

Derby, N.W. Australia, Port Darwin and Port Essington, Rockingham Bay, Port Denison, Wide Bay District, Richmond and Clarence Rivers, New South Wales, Interior, Victoria and S. Australia (Ramsay, 'Tabular List of Australian Birds,' p. 20).

(?) *Castle Point, East Coast of N. Island, New Zealand* (Ellman, Zool. 1861, p. 7469). Shot at *Manawatu River*, and supposed to have been seen at *Rangitikei River* (Buller, Trans. N. Z. Inst. ix. p. 337).

PLATALEA MELANORHYNCHA, Reich.*E Mus. Brit.*

Locality, &c.	Sex.	Culmen.	Naked skin on forehead extends beyond culmen.	Wing.	Tarsus.	Crest.	Colour of primaries at tip.	Naked skin of throat extends beyond angle of mouth.	Band at base of neck.
1. Moreton Bay. (<i>C. Cozzin.</i>) (Gould Coll.) (Skin.)	(♂)	7·9 Corrugated; black, barred transversely with purplish brown.	1·2 Black; warty; yellow spot above eyes and on forehead.	14·5	5·7	ca. 5·5	Pure white.	ca. 2·8 W-shaped.	Pale buff.
2. New South Wales. Australian Mus. (Stuffed.)	(♂)	7·7 Corrugated; black.	1·1 Black; yellow spot above eyes and on forehead.	14·2	5·6	ca. 5·4	Blackish; shafts ditto.	ca. 2·3	None.
3. Queensland. (<i>J. Cockerell & J. Thorpe.</i>) Godman & Salvin Coll. (Skin.)	(♀)	7 Corrugated; black, barred with purplish brown.	1 Black; warty; yellow spot above eyes and on forehead.	13·5	4·9	ca. 5	Pure white.	ca. 2·8 W-shaped.	Very pale buff.
4. New South Wales. Australian Mus. (Stuffed.)	(♀)	6·7 Corrugated; black, barred transversely with purplish brown.	1·2 Black; yellow spot above eyes and on forehead.	14·3	5	ca. 2 in quill	Pure white.	ca. 2·3	None.
5. Queensland. (<i>J. Cockerell & J. Thorpe.</i>) Godman & Salvin Coll. (Skin.)	(♀)	6·6 Smooth; black.	·8 Black, trace of yellow spot on forehead.	13	4·6	None.	Faded brown.	ca. 1·6 W-shaped.	None.

6. Port Easington. (Capt. W. Chambers, R.N.) (Stuffed.)	(♀)	6.5 Slightly corrugated; black faintly barred with yellow.	1.2 Black, yellow spot above eyes and on forehead rather large.	13.7	5	None.	Brownish black, shafts ditto.	ca. 2.2	None.
7. Queensland. (J. Cockerell & J. Thorpe.) Godman & Salvin Coll. (Skin.)		6.3 Slightly corrugated; black.	1.1 Black; slightly warty; yellow spots very faint.	13.8	4.8	None.	Dark brown, shafts black.	ca. 1.6 W-shaped.	None.
8. Moreton Bay. (C. Corin.) Gould Coll. (Skin.)		6 Smooth; purplish black.	.6 Black; faint yellow spot on forehead.	13.6	4.6	None.	Blackish brown, shafts black.	ca. 1.7 W-shaped.	None.
<i>E Mus. Lugdun. (fide Büttikofer).</i>									
9. Moreton Bay. 1863.	♂	7.6 Smooth; black.	1 Black; yellow patch above and below the eye and on forehead.	14.8	5.1	1.6	Black.	1.9	None.
10. Port Mackay. 1869.		7.4 Smooth; black, spatule whitish.	1 Black; yellow patch above and below the eye and on forehead.	14.2	5	3	White.	2.1	None.
11. Cape York. 1879.	♂	6.6 Smooth; black.	1.3 The same.	14.2	4.8	5	White.	1.9	Faint yellow.
12. Timor. 1881. (Governor Lansberge.)	(♀)	6.6 The same.	1.1 The same.	13.3	4.5	2	White.	2	None.

PLATALEA INTERMEDIA, sp. n. (Plate I. figs. 2 & 2A.)

This species, as already mentioned, is based solely on the head and feet of a specimen obtained by Mr. H. Romilly at Port Moresby, New Guinea, in or about the month of January 1888. It appears to have been a nearly fully adult bird, in winter plumage, and, judging from the appearance of the feathers in quill, would in a short time have possessed a crest. The plumage is said to have been entirely white, like that of the head; but whether the primaries were entirely white is uncertain, and it seems to me probable that they were still more or less tipped with brownish black, as I believe the bird to have been in the second season. The species is most nearly allied to *P. melanorhyncha* of Australia, but is distinguished by having the naked skin of the forehead and throat, as well as the culmen, intense black, without any yellow spots above the eyes, and the spatule *rounded*, instead of being *obtusely truncate*, a character which will be easily seen by referring to the Plate, where the culmen is figured side by side with that of an Australian specimen of about the same age.

Since writing the above, I have received, through the kindness of Dr. Büttikofer, life-sized water-coloured drawings of the heads of two specimens from Borneo, which are preserved in the Leyden Museum. These birds agree in every particular with the head of my type from New Guinea, but are, unfortunately, neither of them fully adult, having the crests only partially developed and the ends of the primaries still tipped with black. They are both said to have been female specimens, and, judging from their measurements, are doubtless correctly sexed; but unfortunately the dates when they were obtained are not recorded, nor the exact localities; but they were probably obtained in the south of Borneo, which is said to be swampy and suited to their mode of life. It is to be hoped that, ere long, we may receive fully adult specimens of this bird, which has hitherto been unrecorded. To Mr. A. H. Everett and Mr. John Whitehead and other well-known travellers, Spoonbills are quite unknown, but their explorations have been chiefly carried on in the north of the island, where the mountainous character of the country is unsuited to the habits of these birds.

PLATALEA INTERMEDIA, sp. n.

E Mus. Brit.

Locality, &c.	Sex.	Culmen.	Naked skin on fore-head extends beyond culmen.	Wing.	Tarsus.	Crest.	Colour of wing-feathers at tip.	Throat-patch extends beyond angle of mouth.	Band at base of neck.
1. S.E. New Guinea. (H. H. Romilly.) (Head and legs.) (Type.)	(♂)	7 Smooth; black.	1 Black, indication of yellow patch below eye and at back of forehead.	..	5·3	in quill	ca. 1·6	
E Mus. Lugdun. (fide Büttikofer).									
2. Borneo. (Hoedt, 1864.)	♀	6·4 Smooth; black.	9 Black, as above.	12·9	4·3	1·1	Black.	1·5	None.
3. Borneo. (Hoedt, 1864.)	♀	6·4 As above.	1 As above.	13·1	4·4	1·1	Black.	1·5	None.

CHAR.—♂ (?) and ♀ nearly fully adult. Naked skin of forehead and throat deep black; bill the same. A yellow patch at the back of the forehead and under each eye. The plumes of the forehead do not advance to the posterior margin of the eye, and are 1·0 distant from the base of the culmen. The naked throat extends 1·5 beyond the angle of the mouth, and is slightly W-shaped posteriorly. End of the spatule *rounded*. Primaries with black tips.

The table on p. 53 shows the measurements of the three known specimens.

PLATALEA MINOR, Temm. & Schl. (Plate I. figs. 3, 3A, & 6, and woodcut, fig. 2, p. 39.)

That this species is absolutely distinct both from *P. major* and from *P. melanorhyncha* is beyond all doubt; and as Dr. Stejneger has already thoroughly argued out the question and established its distinguishing characters, I shall only add a few remarks about the different specimens I have examined. Before I had read Mr. Stejneger's conclusions the British Museum had received Mr. Seebohm's collection, including those of Mr. Swinhoe's specimens from Formosa, viz. "Nos. 1, 3, and 4," mentioned in 'The Ibis' for 1864, and I had also decided that "No. 1" could not have been paired with "No. 2," although shot on the same date, as the former is an immature female of *P. major*, while the latter, which has since been forwarded to me through the kindness of Canon Tristram, is an immature male of *P. minor*, and in most respects similar to No. 3 and to the type in Leyden, though possibly rather older. This specimen in Canon Tristram's collection is labelled as "China; J. Verreaux"; but the make of the skin is precisely the same as Mr. Swinhoe's other specimens, and the measurements and all details agree exactly with his description of his "No. 2."

It is difficult to understand how Mr. Seebohm, having the above-mentioned specimens in his possession, could have fallen into the mistake of considering them as immature birds of the Australian species, and a glance at Plate I., in which the head of the fully adult and crested male (No. 4) is figured

opposite to that of *P. melanorhyncha*, of about the same age, will be sufficient to show the striking differences between these two species.

The head of a young bird from North Goto Island, in Canon Tristram's museum, has the spatule unusually wide. Thanks to the kindness of Dr. Büttikofer, I have received a life-sized water-colour drawing of the head of the type of *P. minor*, which is in the Leyden Museum; and from this the accompanying woodcut (p. 39) has been carefully copied. The feathering of the face and throat, allowing for slight individual variation, agrees exactly with the other specimens of about the same age. I must add, *à propos* of Dr. Stejneger's remark (*op. cit.* p. 284), already alluded to, that the type of *P. minor* does not bear out his theory, there being considerably *less* naked skin in it than in more mature birds. I have also received a drawing from Dr. Büttikofer of the specimen killed by Mr. Swinhoe at Swatow and sent to the Leyden Museum, which is a nearly mature bird, and in many respects similar to his adult male from Tamsuy, Formosa. It was this specimen which induced Prof. Schlegel to unite *P. major* and *P. minor*, though in reality they are widely distinct species.

CHAR.—*Adult* ♂. Naked skin of forehead and throat black; bill black, with a yellow patch across the spatule. A yellow patch under and in front of the eye, extending in a narrow line over the upper lid. The plumes on the forehead advance to about the middle of the eye, within about $\cdot 6$ of the base of the culmen; on the throat they advance between the rami of the mandible in a short blunt angle. Primaries white.

Adult ♀. (Similar? smaller?)

Imm. ♂ & ♀. Naked skin of the forehead and throat purplish brown or purplish black; bill yellowish or purplish brown. Yellow patch under the eye less distinct. The plumes of the forehead advance in front of the eye within about $\cdot 4$ of the base of the culmen; on the throat they advance between the rami of the mandible in a long acute angle. Primaries with black tips.

PLATALEA MINOR, Temm. & Schl.
E. Mus. Brit.

Locality, &c.	Sex.	Culmen.	Naked skin on forehead extends beyond culmen.	Wing.	Tarsus.	Crest.	Colour of wing-feathers at end.	Throat-patch extends from angle of the mouth.	Band at base of neck.
1. Tamuuy. (17th March, 1884. <i>R. S. S. S. S.</i>) Seebohm (Coll. (Ibis, 1884, p. 385, No. 3.) (Skin.)	♀	7.2 Smooth; purplish black.	.4 Black, yellow spot below eye.	14	5	Slight (1.5)	Brownish black, shafts black.	1.1 W-shaped.	None.
2. Tamuuy. (17th March, 1884. <i>R. S. S. S. S.</i>) Seebohm (Coll. (Ibis, 1884, p. 385, No. 4.) (Skin.)	♂	7.2 Corrugated; black. Black, yellow spot yellow crescent at tip of spatule.	.6 Black, yellow spot below and in front of eye.	14.4	5	2.5 in quill	Pure white.	1.3 W-shaped.	Pale buff.
3. Fokien. Gould (Coll. (Skin.)	(♀)	6.7 Smooth; purplish brown.	.4 Black.	13.5	5	None.	Brownish black.	1.3 W-shaped.	None.

E Mus. H. B. Tristram.

	♂	6·9	·4	13·5	4·7	Slight (1·3)	Brownish black, shafts black.	·8 W-shaped.	None.
4. Tamsuy. (7th March, 1864. <i>R. Swinhoe</i> .) (<i>Ibis</i> , 1864, p. 365, No. 2.) (Skin.)		Smooth; purplish brown.	Purplish black, yellow patch under eye.	2·6	·8 W-shaped.	
5. N. Goto Is., Japan. (1876. <i>Lt. Gunn, R.N.</i>) (Head only.)		6·2 Smooth; purplish brown; spatule somewhat unusu- ally wide (2 inches) and obtuse.	·4 Purplish black, yellow patch under eye.	2·6	·8 W-shaped.	

E Mus. Lugdun. (fide Büttikofer).

	♂	6·4	Purplish brown, yellow patch below eye.	13	4·2	None.	Black.	1·2 W-shaped.	None.
6. Japan (<i>type</i>). (<i>Dr. Brüger</i> .)		Smooth; yellowish brown.							
7. Swatow, South China. (1863. <i>R. Swinhoe</i> .)		7·7 Smooth; yellowish brown.	Black; yellow patch below eye.	14	5	1·4	Black.	·7	None.
8. Australia (? ?). (1858.)		7·3 Smooth; black.	·8 Black entirely.	14·6	5	1·3	Black.	("Hardly any.")	None.

The preceding table gives a complete list of all the specimens I have been able to examine, with measurements and other details. Dr. Büttikofer has supplied me with those of the Leyden specimens.

Geographical Distribution of P. minor.

Korea.

Japan (Mus. Lugd.). *Nagasaki* (Petersen).

Fokien and *Swatow* (see list above).

Tamsuy Harbour, Formosa (Swinhoe, *Ibis*, 1864, Nos. 2, 3, and 4).

EXPLANATION OF PLATE I.

Figs. 1 & 1A. *Platalea melanorhyncha*, immature. Queensland.

Figs. 2 & 2A. *Platalea intermedia*, ♂ nearly adult. New Guinea (type).

Figs. 3 & 3A. *Platalea minor*, ♀ immature. Tamsuy Harbour. (Swinhoe, No. 3.)

Fig. 4. *Platalea melanorhyncha*, ♂ adult. Moreton Bay.

Fig. 5. *Platalea melanorhyncha*, young. Moreton Bay.

Fig. 6. *Platalea minor*, ♂ adult. Tamsuy Harbour. (Swinhoe, No. 4.)

IV.—*Notes on Woodpeckers.*—No. XV. *On three new American Species.* By EDWARD HARGITT, F.Z.S.

THE following species have been known to me for some time, but I have delayed describing them until I had become better acquainted with the genera to which they belong. After a careful examination of the *Picidæ* in the British Museum, and also in the Salvin-Godman and the Sclater collections, I am more than ever convinced of their being quite distinct from any known species, and I no longer hesitate to describe them as new to science. I append a brief diagnosis of each of them.

1. *CAMPOPHILUS SPLENDENS*, sp. n.

Similar to *C. hæmatogaster*, but differs in having the whole of the neck and the throat, in a line with the end of the malar region (or even higher), crimson, this colour also tipping the posterior malar feathers; the light bars on the quills are yellow and much broader, and approach nearer to

the tips of the feathers; under wing-coverts and axillaries yellow. Total length 12·5 inches; culmen 2·05; wing 7·3; tail 4·1; tarsus 1·4. Type in my collection.

The fine adult male bird which has served as the type is labelled "Amazons" (*Dr. Wucherer*), but it has the make of a Bogota skin. Another male from Panama (*Schlüter*), also in my collection, shows the buff barring on the bases of the feathers of the underparts, and is apparently a bird not fully adult.

A female example from Santa Elena, Medellin (*Salmon*), likewise in my possession, differs from the male in having the throat and fore neck black, the yellow stripe which crosses the face being prolonged down the side of the neck and paler in colour, and in having at the base a few transverse black markings: the hind neck is black, the tips of the feathers being red, this colour appearing as a median line down the neck. The feathers of the underparts are tipped with crimson, but their black bases are barred with buff and show very distinctly through the red. I take this specimen to be an immature bird, but it may not be so; if it be adult, then the difference between it and the adult female of *C. hæmatogaster* will be at once perceived in the former having the bases of the feathers of the hind neck black, whereas in *C. hæmatogaster* they are white.

2. CHRYSOPTILUS MARIÆ, sp. n.

Similar to *C. icteromelas*, but much smaller, and differs in having all the tail-shafts bright golden yellow, those of the central feathers being brown at the tip; the rump spotted. Total length 8·5 inches; culmen 1·05; wing 4·5; tail 2·8; tarsus 0·9.

Hab. Chamicuros, E. Peru. The type is in my collection.

3. DENDROBATES FIDELIS, sp. n.

Similar to *D. olivinus*, but differs in having the whole of the top of the head and the occiput red; the fore neck and chest brownish olive, with small spots and shaft-stripes of dull fulvescent white, not barred. Total length 5·3 inches; culmen 0·8; wing 3·0; tail 1·7; tarsus 0·68.

Hab. Bogota. The type is in the British Museum.

I have never seen an example of *D. murinus*, but, from descriptions of the bird, I have no doubt it will prove to be a nearer ally of the present species than is *D. olivinus*, in so far as the top of the head, as well as the occiput, is red in the male.

V.—*On the Breeding of Puffinus auduboni in the Island of Barbados.* By Colonel H. W. FEILDEN.

It is with considerable pleasure that I am able to add another breeding species to the very limited recorded list of the avifauna of Barbados.

The species is *Puffinus auduboni* *, and it breeds on an isolated rock off the north shore of the island. I may safely say that this fact has hitherto been generally unknown, and that the knowledge that some species of sea-bird visited the island of Barbados for the purposes of incubation was confined to a few individuals in the parish of St. Lucy, off which the Bird-rock lies. Before leaving England for the West Indies, I had been reading Hughes's 'Natural History of Barbados' (London, 1750), wherein, at page 251, the following passage occurs:—"The several cavities in the cliffs facing the sea are proper dens for Racoons, and such wild beasts. They are likewise a place of safety for several Sea-birds to breed in, especially at a place called the Bird-rock, where are to be seen at most times of the year, a great many of their nests and eggs. The young ones are sharp-billed, wet-footed, and very fat, but taste fishy. The old ones are seldom or ever seen in the day-time, for they are obliged to range to so great a distance from the shore for food, that they have been seen scores of miles from land."

I had hardly dared to hope that after the lapse of nearly one hundred and forty years, in the most populous and highly cultivated island in the world, anything more than the tradition of the feathered inhabitants of Bird-rock would

* [The specimens sent home by Colonel Feilden have been determined by Mr. Salvin as *Puffinus auduboni*, Finsch : Ridgw. Man. N. A. B. p. 60.—ED.]

exist, more especially as it is so insignificant a rock that it is not even named on the Admiralty chart. On landing in Barbados I at once made inquiries on the subject, at first with little success, and the Bird-rock seemed to be an unknown spot, whilst the idea of sea-birds breeding in Barbados was generally scouted. Fortunately I addressed a letter on the subject to the Rev. G. Duncan Gittens, Rector of St. Lucy's parish, and by return of post received the following reply: "I know Bird-rock well, having some years ago made an incursion upon it with some friends for the express purpose of capturing some of the many young of the sea-birds which abound on that rock. It lies about a hundred yards from the actual coast-line of this island, and the birds, if very young, are a mass of gluten, and although very strong-tasted, when properly purified by lime-juice and salt, are by some considered a delicacy." This information was accompanied by a very kind invitation to visit the Rectory and to attempt a raid on Bird-rock.

It was a long drive, seventeen miles, from the Garrison to St. Lucy's Rectory; but I started well before daybreak and the sun had not been long above the horizon, nor the labourers long amongst the sugar-canes, when I drew up at the Rectory door. I received a most cordial welcome from the venerable Rector, who had been forty-nine years in Holy orders, and thirty-three in the incumbency of St. Lucy's parish. After breakfast Mr. Gittens drove me to visit some caves on Mount Gilboa, referred to by Hughes*, and I picked up in their neighbourhood several shell-chisels and pieces of rude pottery. In the main cave is a deep deposit of soil covered with stones, the methodical exploration of which would be highly desirable. We then drove to the coast-line overlooking Bird-rock; the way down to the shore is a steep and slippery path, cut through the coral rock; but neither the heat nor the difficulty of the road deterred my host, who managed the descent and ascent, unaided, and quite as well as I did. On reaching the little cave at the base of the cliff, Bird-rock was pointed out to me, and I could hardly believe my eyes when told that this was

* *Op. cit.* p. 7.

the breeding-place of the sea-fowl ; it is the furthest from shore of three rocks or detached blocks of coral limestone, and rests on a ledge over which the sea breaks continuously. It is difficult to estimate size by the eye, particularly in the glare of the tropical sun and the intense reflected heat of the white rocks ; but I should say Bird-rock is about thirty-five feet high and about sixty or seventy feet across, the only vegetation I could see on it being a large-leaved creeper, which the men who had been on the rock said was the broad-leaved *Ipomœa* (*Argyreia speciosa*), an East Indian plant, common all over Barbados.

The constant lashing and surging of the waves around the base has eaten a ledge which gives the rock the appearance of an immense mushroom, and adds greatly to the difficulty of ascending it. Mr. Gittens had arranged that some of the men who were in the habit of visiting this rock should be at the spot, prepared to show me the difficulties of reaching it. We found three men awaiting our arrival. Divesting themselves of their clothes, they plunged into the surf, two of them taking a small tree-trunk about fourteen feet long with them, to be used as a ladder whereby to scale the rock. It was an interesting sight to see these fine athletic fellows in the surf, their bronze skins shining amid the blue and white waters ; then they shot like porpoises under the breakers and appeared floating in the trough of the wave beyond. A biggish wave came rolling in and burst in spray and surf high above the ledge of Bird-rock ; the leader of the three men had dived well beneath this wave, and as it broke and receded in a cascade, he appeared clinging to the ledge, the war of waters having passed over him ; in an instant he sprang on to the ledge and in a few minutes the other two men joined him. The ascent to the top of the rock being only possible on the outer side, I was unable to see any more of the men's proceedings. This landing was made to show me how the feat is accomplished. A few hours prior to my arrival these same men had visited the rock and had taken twenty-four young Shearwaters, which they intended to sell for food, and a single egg.

No old birds had been seen by them on the rock, and they expressed the opinion that it would be very difficult to procure one; but on this second visit they managed to capture an adult bird in a hole, and found another egg, which, like the first one, proved to be addled. The young Shearwaters uttered a plaintive liquid-sounding note something like *Whitter whitter whit whit wit*.

The adult bird is 13 inches from tip of bill to end of tail, wing $8\frac{1}{2}$ inches; spread of wing 26 inches; bill from point to gape $1\frac{1}{2}$ inch; culmen 1 inch; tarsus $1\frac{1}{2}$ inch. Colour of bill uniform lead-grey, darkening on culmen; iris very dark; legs and feet pearly white with pinkish hue underlying; back of tarsus and outer toe black; underparts of the middle and inner toe likewise black; forehead, crown, back, and tail and wing uniform sooty black; primaries sooty black, the first longest; from chin to vent white, under eyelid white, under wing-coverts white.

VI.—*On the Ornithology of Northern Borneo.* By R. BOWDLER SHARPE, F.L.S. &c., Zoological Department, British Museum. *With Notes* by JOHN WHITEHEAD.

(Plates II.–IV.)

IN the present paper I have commenced a list of all the species of birds procured by my friend Mr. John Whitehead during his four years' travels in Northern Borneo. The chief interest naturally centres round his exploration of the great mountain of Kina Balu, of the avifauna of which a complete account is here, for the first time, attempted. The comparison of the natural history of this mountain with that of Sumatra, Java, and Tenasserim I shall leave till the end of the memoir. The following are Mr. Whitehead's notes on his journeys, and all his observations on the habits of the different species are placed between brackets.

“My first Bornean collections were made in the neighbourhood of Sandakan; the collection was small and contained examples of a few well-known species. In April 1885

(the same year) I left for Gaya Island, hoping to start from there for Kina Balu in the beginning of May. However, as the officials of the British North Borneo Company stated that some of the interior tribes had been raiding as far as the coast in search of heads, and that it was necessary to send a police expedition inland to punish the very tribes I had intended visiting, all idea of reaching Kina Balu during that dry season was abandoned.

“ A few days after I left for the Padas River, and spent some three weeks on the higher parts of that river, but as birds were very scarce, and my collections hardly worth the name, I again left for Labuan. In August of the same year I proceeded with three natives to Benkoka, in the north of Borneo, where we remained until the middle of November. On this river my collections were numerous and contained examples of many fine species.

“ In February 1886 I again left for Kina Balu, this time reaching the Tampassuk River; but all attempts to find natives to carry my baggage from there inland failed. Some were willing to go but had no buffaloes, others had buffaloes but could not go, or, in true Eastern style, would not give a straight answer. After ten days of fruitless search, it came out that nobody would go inland amongst the Dusan tribes, all stating that it would be unsafe; this I soon heard was perfectly true. The Company's expedition last year never went inland, having received a severe blow on the coast, where seven Bajows ran 'amuck' amongst the leaders of the force, and killed the four chief officers, thus leaving the rest without leaders. This year another police expedition was formed, and whilst I was doing my best to obtain buffaloes on the coast, attacked a native chief, killed eight or more of his tribe, and burnt down his village; this having occurred within twenty miles of us, without our knowledge. As the temper of the people inland was roused, it would have been unsafe to travel amongst them, so my expedition was reluctantly abandoned.

“ In March 1886 I left for the Lawas River, where I obtained specimens of a few interesting species. The same

year I went to Java and made an interesting collection of mountain-species.

“In January 1887 I again left for Kina Balu, and this time succeeded in reaching the mountain; my collections were made on the western spurs up to 5000 feet. After remaining there for two months and a half, want of provisions and articles for barter caused me to start for the coast. The results of this expedition as regards birds have been published by Mr. R. B. Sharpe in this Journal (see *Ibis*, 1887, pp. 435–454). The same year I left for Palawan, and remained there four months; a list of this collection has also been given (see *Ibis*, 1888, pp. 383–396 & 478–479).

“In December of the same year I again left for Kina Balu, and remained there until the following June. This, my last expedition, was thoroughly successful; I succeeded in reaching the highest altitudes and in making a splendid collection during one month spent at 8000 feet. I made several other expeditions to other parts of the mountain, camping from twenty to twenty-five days in one place.

“The weather during the eight months actually spent on the mountain was extremely wet; sometimes it would rain for three days at a time, and the general average would be about six hours per diem, generally from 1 P.M. till nightfall, thus much precious time was lost, and it was most difficult to dry any specimens collected.

“As I find it impossible to give anything but a sketch of my journeys in this paper, I hope in the near future to publish a full account of my travels.”

Order ACCIPITRES.

Suborder *FALCONES*.

Fam. *FALCONIDÆ*.

1. *CIRCUS SPILONOTUS*.

Circus spilonotus, Kaup; Sharpe, Cat. B. i. p. 58; id. *Ibis*, 1876, p. 307, 1877, p. 2; id. P. Z. S. 1879, p. 322; id. *Ibis*, 1879, p. 235.

The series of this Harrier collected by Mr. Whitehead

seems to prove conclusively that the sexes are similar when they are fully adult. The description of the adult female therefore, as given by me in the 'Catalogue of Birds,' is erroneous, and refers only to the young bird.

The following are the dimensions of Mr. Whitehead's series :—

	Total length. in.	Wing. in.	Tail. in.	Tarsus. in.
a. ♂ ad. Abai, N.W. Borneo	18·6	15·35	9·1	3·3
b. [♀] ad. Labuan	20·5	15·8	9·3	3·4
c. ♀ ad. Abai	18·0	14·5	8·7	3·1
d. ♂ ad. Abai	16·5	13·9	8·0	3·05
e. ♀ imm. Abai	17·5	13·7	8·2	2·95
f. ♀ juv. Lawas River	17·3	13·9	8·2	3·1
g. Juv. Labuan	20·5	15·4	9·2	3·45
h. Juv. Labuan	20·0	15·3	8·6	3·5
i. Juv. Paulou Sebang, Malacca	21·5	15·9	8·7	3·3

Young. More or less rufous, especially below; mantle more or less streaked; well-marked shoulder-patch; head varying from fawn-buff to white; centre tail-feathers uniform at first, outer ones brown, more or less mottled with rufous, but not barred. So from early in February. Signs of moult slight.

The fawn-coloured head and light parts often bleach to white, including shoulder-patch and throat, and often have a patch on the breast; the rufous mottling on the tail takes more the form of bars, and the centre feathers are dark brown, tolerably distinctly barred with lighter brown.

In April a female bird shot in full moult from brown plumage is very uniform in character and has a dark head. It has a pure white feather coming on the side of the neck; upper tail-coverts white, with rufous spots. The old tail-feathers are brown, with broad darker brown bars and a great deal of rufous mottling towards the base. The newly moulted feathers are dark ashy grey, with whitish tips, and crossed by five broad blackish bars. No shoulder-mark.

Another female, shot at Abai on the 19th of February, is also in full moult, and seems to illustrate the intermediate stage towards the full plumage. The centre tail-feathers are

grey, with six broad blackish bars; the upper tail-coverts are white, with smaller rufous spots. The under surface is white or buffy white, with broad brown streaks. In this first stage for the first time appears grey in the wing-coverts. It has a shoulder-mark. From the above stage to the fully adult there seems to be one more moult, when the streaks below become paler and narrower, and are in many feathers arrow-head shaped. The whole plumage becomes lighter above, the upper tail-coverts pure white, with scarcely any spots; the tail-feathers pure grey, the centre ones with six dusky grey bars; outer feathers also grey and similarly barred, but the bars tinged with rufous. The grey on the wing and the grey shoulder-patch are well developed, but there is none of the spotting on the back which characterizes the final stage.

The last plumage has a uniform tail and nearly uniform quills. The under surface is white, with streaks on the throat and breast.

[a. ♂ ad. Abai. Iris bright yellow; feet dull straw-yellow.

b. Ad. Labuan. Shot during my absence on the first expedition to Kina Balu, between the months of February and April.

c. ♀. Abai, Feb. 19, 1886. This bird seems too small to be a female, but was certainly one by dissection.

d. ♂. Abai, Feb. 22, 1886.

e. ♀. Abai, Feb. 22, 1886.

f. ♀ juv. Lawas River, April 5, 1886.

g, h. Juv. Labuan, Nov. 30, 1885.

i. ♀ juv. Paulou Sebang, Malacca, Feb. 9, 1885. Iris light sepia; feet dull chrome-yellow.]

2. *ASTUR TRIVIRGATUS*.

Astur trivirgatus (T.); Sharpe, Cat. B. i. p. 105; Salvad. Ucc. Born. p. 17 (1874); Sharpe, Ibis, 1876, p. 32, 1879, p. 235.

		Total length. in. ?	Wing. in.	Tail. in.	Tarsus. in.
a. ♂ ad.	Kina Balu, February	12·75	7·6	5·7	2·5
b. ♀ ad.	Kina Balu, March	14·6	8·3	6·1	2·4
c. ♀ ad.	Kina Balu, March	15·0	8·8	6·8	2·25
d. ♂ juv.	Taguso, Palawan, Sept. . .	14·6	8·1	6·1	2·0

[I met with this bird on Kina Balu at a height of 1000 feet in the middle of March 1887. Both specimens procured on that occasion were adult females; and on my second expedition I met with a male bird in February 1888 at a precisely similar altitude. All had well-developed crests.

In Palawan I only obtained a single specimen, a young male, on the 14th of September. The cere and feet were pale yellow, and the iris light straw-yellow. This specimen was shot at Taguso, on the coast, so that, so far as my observations go, this Goshawk is not found at any great elevation.]

3. *ASTUR SOLOENSIS*.

Astur soloensis (Lath.) ; Sharpe, Cat. B. i. p. 114; id. Ibis, 1879, p. 235.

Micronisus soloensis, Salvad. Ucc. Born. p. 17 (1874).

a. ♀ juv. Kina Balu, Feb. 26, 1887. Wing 7·8 inches.

[On Kina Balu I only found this Goshawk at a height of 1000 feet, when I shot a young female. Iris king's-yellow; feet and cere similar.]

4. *ACCIPITER VIRGATUS*.

Accipiter virgatus (T.) ; Sharpe, Cat. B. i. p. 150 ; Salvad. Ucc. Born. p. 17 (1874).

a. ♂ ad. Kina Balu, Feb. 1887. Wing 6·2 inches.

[This bird is evidently a migrant to Kina Balu, and was obtained under the same circumstances as *Astur soloensis*.]

5. *ACCIPITER RUFOTIBIALIS*. (Plate II.)

Accipiter rufotibialis, Sharpe, Ibis, 1887, p. 437.

Adult male. General colour above dark slaty grey, the feathers blackish on the edges, the head and mantle blacker than the back; quills blackish brown, crossed with bars of

1. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Lichtenthal and Whistler (1973).

[illegible]

The author's objective was to determine whether the frequency of sampling affected the accuracy of estimates on the basis of the sample means. The results are expected to help researchers choose appropriate frequencies of sampling.

[illegible]

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

[illegible]

1. *Colaptes auratus*, Plate II
 2. *Myiophobus niger*, Sharpe, Ibis, 1887, p. 437.
 3. *Colaptes auratus*, above dark slaty grey,
 below slaty grey, the head and mouth
 black, throat blackish brown, crossed with red.

black, from five to six in number; rump, upper tail-coverts, and tail slaty grey, lighter than the back, the tail crossed by four black bands, five in number on the outer feather; lores, sides of face, and ear-coverts sooty black, the cheeks blackish washed with rufous; the under surface of the body rich chestnut, the throat buff, with a central line of blackish streaks; abdomen chestnut, with a few white bars on the upper part, the lower abdomen white with a few broad reddish bars; under tail-coverts white; thighs uniform chestnut; under wing-coverts reddish buff, spotted with black; axillaries whitish, washed with rufous and barred across with dull blackish. Total length 9·3 inches, culmen 0·4, wing 5·95, tail 4·2, tarsus 1·8.

Young male in moult. The first plumage has evidently been brown, with broad ferruginous edges to all the feathers; tail ashy brown, with four black bands, five on the outer feather. The under surface is rufous, like the adult, with remains of the broad black streaks on the chest belonging to the first plumage. Thighs nearly uniform rufous, with slight remains of brown mottling. Total length 9 inches, culmen 0·4, wing 5·7, tail 4, tarsus 1·75.

Since describing this species, I have been able to compare it with specimens of *A. manillensis* in the Tweeddale collection, and I find that it is quite distinct and easily recognizable by its rufous thighs.

[This species seems to be confined to the more open country of Kina Balu, *i. e.* the Dusun clearings. I saw it from 1000 feet to 4000 feet, but it appears to be extremely rare. In fact I only managed to procure two specimens on my first expedition, and in 1888, during my second visit, I only saw three birds, none of which I was able to procure. I was witness to a plucky fight between one of these Sparrow-Hawks and a *Spilornis*, when the former attacked the Eagle with fury and drove him right out of the tree.

On the 30th of March, 1888, a native brought me two eggs, evidently of this Hawk, which had been seen by me about the locality where the nest was found. One egg is of the typical Sparrow-Hawk type. Length 1·45, diam.

1·15 in. Colour greenish white, with the usual reddish blotches towards the larger end. The second egg is nearly spotless. Length 1·5, diam. 1·2 in.]

6. *SPIZAETUS LIMNAETUS*.

Spizaetus limnaetus (Horsf.); Sharpe, Cat. B. i. p. 272; Salvad. Ucc. Born. p. 15 (1874); Sharpe, Ibis, 1878, p. 415; id. P. Z. S. 1872, p. 322; id. P. Z. S. 1881, p. 791.

The series of skins brought home by Mr. Whitehead does not shake my confidence in the conclusions to which I came in the 'Catalogue of Birds,' excepting that I may be mistaken with regard to the uniform dark brown plumage, which, instead of being characteristic of the fully adult bird only, may be merely a melanistic form, such as we are accustomed to see in the genus *Pernis*, and one liable to occur at any stage of the bird's life.

Leaving aside the uniform black-plumaged bird, which was obtained by Mr. Whitehead only in Palawan, we find in the other six specimens procured four different styles of plumage:—first the white-breasted stage, with a few streaks on the underparts; then a browner stage, streaked with black; a white-breasted bird, with broad streaks; and a bird with nearly uniform brown breast, not, however, approaching the brown melanistic stage.

The following is a list of the specimens:—

- a. ♀ juv. Taguso, Palawan, July 18, 1887. Wing 16·5 in.
- b. ♀ ad. [mel.]. Taguso, Palawan, Sept. Wing 16·5 in.
- c. ♀ ad. Labuan, Dec. 15, 1885. Wing 16·4 inches.
- d. ♂ ad. Labuan, Nov. 1886. Wing 15 inches.
- e. ♂ juv. Labuan, Aug. 14, 1885. Wing 14·75 inches.
- f. ♂ ad. Tampassuk, Feb. 17, 1886. Wing 16·3 inches.
- g. ♀ ad. Tampassuk, Feb. 19, 1886. Wing 15·0 inches.

As far as our present experience goes, there is only one of these Crested Eagles in Borneo. *Spizaetus cirrhatus* of Salvadori's book (p. 13) and *S. limnaetus* (p. 15) are the same species.

[In Palawan this species was decidedly scarce, and I hardly saw another specimen beyond the two procured. In Labuan

it is resident and breeds on the island. The female with the white under surface striped with brown was shot from the nest on the 15th of December. It was paired with a black male, and the nest contained one large white egg, which has since been unfortunately broken. Nos. 579 and 576, from Tampassuk, were a pair, with a nest and eggs. The male is nearly uniform chocolate-brown, while the female is light brown below, streaked with black.]

7. *LOPHOTRIORCHIS KIENERI*.

Lophotriorchis kieneri (Geoffr.) ; Sharpe, Cat. B. i. p. 256.

Spizuetus kienerii, Salvad. Ucc. Born. p. 16 (1874).

♀ ad. Kina Balu, March 20, 1887. Wing 13·8 inches.

[This is a beautiful adult bird, and was the only one I saw in Borneo. Mr. Wallace had previously procured a specimen in Sarawak, but no one else seems to have met with it. I consider it to be probably only a visitor to Borneo during the N.E. monsoon, as, had it been a resident, I think I must have noticed it on other occasions. My single specimen was procured on my first expedition to Kina Balu at a height of about 1000 feet. Iris dark brown; feet and cere pale chrome-yellow.]

8. *NEOPUS MALAYENSIS*.

Neopus malayensis (T.) ; Sharpe, Cat. B. i. p. 257.

Onychaetus malayensis, Salvad. Ucc. Born. p. 4 (1874).

a. ♂ ad. Padas River, June 14, 1885.

b. ♂ imm. Tampassuk, Feb. 15, 1886.

[The male from the Padas had the iris hazel and the feet and cere king's-yellow. The younger male has the soft parts exactly as in the old bird. Not seen on Kina Balu, but frequently observed on the large plains near the sea-coast, where I have seen it beating low over the hill-sides.]

9. *SPILORNIS BACHA*.

Spilornis bacha (Daud.) ; Sharpe, Cat. B. i. p. 290 (1874) ; Salvad. Ucc. Born. p. 7 (1874).

a. ♀ ad. Kina Balu, March 11. Wing 17 inches.

This is apparently the first real instance of the occurrence of

the species in Borneo, as I have no doubt that the young bird recorded by Count Salvadori from Sarawak was merely *S. pallidus*, Walden, a species which Count Salvadori did not recognize in 1874. I have compared Mr. Whitehead's skin with Javan specimens and find that they cannot be separated.

[This Serpent-Eagle replaces the small *Spilornis pallidus* in the higher regions of Kina Balu. I did not meet with it below 3000 feet, and even at these altitudes it was scarce. The crop of the specimen shot was full of lizards and snakes, and I noticed it frequently beating along the dried-up beds of rivers, where it would easily obtain the various rock-lizards on which it preys.]

10. *SPILORNIS PALLIDUS*, Walden; Sharpe, Cat. B. i. p. 290, pl. ix. (1874); id. Ibis, 1876, p. 327, 1877, p. 3; id. P. Z. S. 1881, p. 791.

a. ♂ ad. Benkoka, Marudu Bay, Oct. 2, 1885. Wing 13·75 inches.

b. ♂ ad. Tampassuk, Feb. 26, 1886. Wing 13·75 inches.

[This species is more frequently met with in the jungle than in the open country. I do not remember observing it above 1000 feet on Kina Balu, but my specimens were destroyed by insects.]

11. *BUTASTUR INDICUS*.

Butastur indicus (Gm.); Sharpe, Cat. B. i. p. 297 (1874); id. P. Z. S. 1879, pp. 245, 322; id. Ibis, 1879, p. 236.

Poliornis indica, Salvad. Ucc. Born. p. 9 (1874).

a. Juv. Labuan, Nov. 1885. Wing 12·75 inches.

b. ♂ ad. Labuan, Dec. 9, 1885. Wing 12·2 inches.

c. Juv. Benkoka, Oct. 22, 1885. Wing 12·2 inches.

d. ♂ juv. Benkoka, Nov. 3, 1885. Wing 12·5 inches.

e. ♀ juv. Benkoka, Nov. 2, 1885. Wing 12·1 inches.

f. ♂ ad. Benkoka, Nov. 14, 1885. Wing 12·2 inches.

g. ♀ ad. Tampassuk, Feb. 17, 1886. Wing 12·5 inches.

h. ♂ ad. Tampassuk, Feb. 18, 1886. Wing 12·3 inches.

i. ♀ ad. Kina Balu, March 30, 1887. Wing 12·5 inches.

The young birds have a very pronounced eye-streak and very little indication of the broad streak on the throat. The

streaks on the chest evidently become gradually broken up into bars, apparently as much by a change of the pattern of the feather as by a moult. The young feathers before the commencement of the moult show a certain amount of change in the shape of a disruption of the central streak, indicative of the forthcoming banded stage.

[I have observed this species in various parts of Northern Borneo between the end of October and the end of March, and it is evidently only a migrant of the N.E. monsoon. During my ascent of Kina Balu I found it as high as 1000 feet. It is generally met with in open places. A young male had the iris yellowish olive, the feet and cere dull yellow.]

12. *HALIAETUS LEUCOGASTER*.

Haliaetus leucogaster (Gm.); Sharpe, Cat. B. i. p. 307 (1874); id. Ibis, 1877, p. 3; id. P. Z. S. 1879, p. 323; id. Ibis, 1879, p. 236.

Cuncuma leucogaster, Salvad. Ucc. Born. p. 5.

a. ♀ ad. Abai, Borneo, Dec. 23, 1887.

b. ♂ juv. Abai, Feb. 26, 1886.

c. ♀ juv. Abai, March 10, 1886.

d. ♂ ad. Abai, March 11, 1886.

e. ♀ ad. Taguso, Palawan, Aug. 12, 1887.

[Iris hazel; feet dirty white; skin on face French-blue. Plentiful all round the coast of Borneo, but rarer in Palawan. I found a nest on the 12th of April with nearly-fledged young. The nest was on a dead tree in a forest which had been recently burnt. The nestlings were beautifully speckled, much more so than in the full-grown young birds which were afterwards procured. The nest was full of the remains of sea-snakes, on which this Eagle frequently feeds. One of my specimens is stained on the breast with the ink of the cuttle-fish, which, according to the natives, is also a favourite food of this species.]

13. *POLIOAETUS ICHTHYAETUS*.

Polioaetus ichthyaetus (Horsf.); Sharpe, Cat. B. i. p. 452; Salvad. Ucc. Born. p. 6.

a. ♂ ad. Benkoka, Sept. 6, 1885. Wing 17·8 inches.

[Iris light hazel; feet greyish blue; Bill black. Brought to me alive by a native.]

14. *HALIASTUR INTERMEDIUS.*

Haliastur intermedius, Gurney; Sharpe, Cat. B. i. p. 314 (1874); id. Ibis, 1876, p. 32; id. P. Z. S. 1879, p. 323; id. Ibis, 1877, p. 3, 1879, p. 236; id. P. Z. S. 1881, p. 791.

Haliastur indus, Salvad. Ucc. Born. p. 12.

a. ♂ ad. Abai, Dec. 24, 1887.

b. ♂ ad. Tampassuk, Feb. 17, 1886.

c. ♀ juv. Tampassuk, Feb. 17, 1886.

d. ♂ juv. Tampassuk, Feb. 17, 1886.

e. ♂ ad. Benkoka, Sept. 27, 1885.

[The young male from Tampassuk had the bill and feet dull greenish yellow. Although I did not bring a specimen from Kina Balu, the bird is found there up to 1000 feet. It is a great robber of chickens, and is much detested by the natives.]

15. *PERNIS PTILONORHYNCHUS.*

Pernis ptilonorhynchus (T.); Sharpe, Cat. B. i. p. 347 (1874); id. P. Z. S. 1881, p. 791.

Pernis ptilorhyncha, Salvad. Ucc. Born. p. 9.

a. Juv. Malacca.

b. ♂ ad. Labuan, Nov. 30, 1885.

c. ♂ ad. Kina Balu, March 20, 1887.

d. ♀ ad. mel. Kina Balu, March 25, 1887.

e. Ad. mel. Taguso, Palawan, Aug. 15, 1887.

[The young bird from Malacca I shot on the 7th of January, 1885, at Paulou Sebang. Iris light straw-yellow; feet yellow. All the Bornean and Palawan birds are old, with grey faces, and two of them have large crests. They are inhabitants of the forest, but do not extend above 1000 feet on Kina Balu.]

16. *MICROHIERAX LATIFRONS.*

Microhierax latifrons, Sharpe, Ibis, 1879, p. 237, pl. vii.; id. P. Z. S. 1881, p. 790.

a. ♀ ad. Benkoka, Sept. 30, 1885.

17. *FALCO COMMUNIS*.

Falco communis, Gm. ; Sharpe, Cat. B. i. p. 376 (1874) ; Salvad. Ucc. Born. p. 1 (1874) ; Sharpe, P. Z. S. 1881, p. 790.

Falco peregrinus, Sharpe, P. Z. S. 1879, p. 323 ; id. Ibis, 1879, p. 237.

a. ♂ ad. Labuan, spring of 1886.

b, c. ♂ ♀ juv. Labuan, Dec. 8, 1887.

All three specimens are of the ordinary light form, not the dark richly coloured Peregrine of the Sunda Islands, of which the British Museum possesses a splendid example from the Lawas River.

[Only found during the N.E. monsoon.]

18. *CERCHNEIS TINNUNCULUS*.

Cerchneis tinnunculus (L.) ; Sharpe, Cat. B. i. p. 425 (1874) ; id. P. Z. S. 1879, p. 323.

a. ♂ juv. Abai, Dec. 25, 1887.

An immature male, apparently of the dark Chinese form.

[This species is evidently very scarce, and I only noticed it on the large plains of Tampassuk.]

Suborder *PANDIONES*.

19. *PANDION HALIAETUS*.

Pandion haliaetus (L.) ; Sharpe, Cat. B. i. p. 449 (1874) ; Salvad. Ucc. Born. p. 7 (1874) ; Sharpe, P. Z. S. 1879, p. 324.

a. ♀ ad. Abai, Dec. 26, 1887. Wing 19·2 inches.

b. ♀ ad. Abai, Dec. 27, 1887. Wing 18·5 inches.

c. ♀ imm. Abai, Dec. 26, 1887. Wing 18·75 inches.

These birds belong to the large form of Osprey and not to the small Australian race.

[The first female had the iris yellow ; bill black, slaty blue at base of lower mandible ; cere slaty blue ; feet white, with a pale bluish tinge ; claws black. I think that the Osprey is a migrant in Northern Borneo.]

Suborder *STRIGES*.

Fam. BUBONIDÆ.

20. *KETUPA KETUPA*.

Ketupa ketupa (Horsf.) ; Sharpe, P. Z. S. 1881, p. 791 ; Salvad. Ucc. Born. p. 20 (1874).

Ketupa javanensis, Less. ; Sharpe, Cat. B. ii. p. 8 (1875) ; id. P. Z. S. 1879, p. 324 ; id. Ibis, 1879, p. 237.

a. ♀ ad. Benkoka, Nov. 12, 1885.

[Shot in the forest in open places near the paddy-fields in Northern Borneo. I never met with it in my Kina Balu expeditions. In Malacca I shot one at Ayer Panas. Iris pale greenish yellow ; bill and feet brownish yellow.]

21. *BUBO ORIENTALIS*.

Bubo orientalis (Horsf.) ; Sharpe, Cat. B. ii. p. 39 (1875) ; id. P. Z. S. 1879, p. 245 ; id. Ibis, 1879, p. 238.

Bubo sumatranus, Salvad. Ucc. Born. p. 19 (1874).

a. ♂ ad. Kina Balu, March 2, 1887. Wing 13·7 inches.

b. ♀ ad. Kina Balu, April 3, 1887. Wing 13·7 inches.

Although there is scarcely any difference in size, there is a marked variation in the colour of this pair. The male is much the lighter of the two, with a good deal of white on the ear-tufts, the wing, scapulars, greater wing-coverts, and end of tail. The female is remarkable for the uniformity of the upper surface, which shows scarcely any white markings. In the character of the light-brown cross-barring both birds are exactly alike. Beneath the male is much the whiter, and has the throat and chest almost similar to the abdomen, the cross-barring being merely rather closer and broader, but the ground-colour is white ; whereas in the female there is a distinct contrast between the throat and chest and the rest of the under surface, the former parts being nearly as dark as the upper surface of the body. The male has the under aspect of the quills much more distinctly banded than the female. Of course some of this light coloration of the male bird may be due to youth ; but it is, in my opinion, quite an adult bird, though not so old as the female.

[The male had the iris black ; bill light straw-yellow ; feet darker straw-yellow. I met with it at about 3000 feet in the scrubby jungle on the lower spurs of Kina Balu. The female bird was obtained at about the same elevation and in precisely similar situations. I do not think it goes higher up the mountain. The first bird was obtained under curious circumstances. One of my hunters having found a flock of *Staphidia everetti* and other small birds in the jungle, singled out one of them and brought it down with a walking-stick gun. To his astonishment this large Owl came tumbling down along with the little *Staphidia*. The man had not seen the Owl in the thick jungle, and there is no doubt that the small birds had been mobbing the *Bubo*.]

Suborder *STRIGES*.*HETEROSCOPS*, gen. n.

Genus simile generi '*Scops*' dicto, sed fasciis auricularibus absentibus, et facie crinibus tenuibus ornata distinguendum. Typus sit

22. *HETEROSCOPS LUCIÆ*. (Plate III.)

Scops luciæ, Sharpe, Ibis, 1888, p. 478.

Adult female. General colour above tawny rufous, mottled with coarse black vermiculations, giving here and there a spotted appearance ; on the hinder mantle some large ovate fulvous marks, not sufficiently indicated to form a "wig" ; scapulars externally yellowish white, forming a broad streak, with a black spot near the end of the shaft ; upper tail-coverts rather more regularly barred with black ; wing-coverts like the back, but the black vermiculations on the median series more sparsely distributed ; bastard-wing blackish internally, with a chequered pattern of broad black and tawny-buff bars on the outer web ; primary-coverts rufous, with small black vermiculations and feebly indicated bars of black on the outer web ; primaries chequered with black and tawny-buff bars on the outer web, the black more or less mixed with tawny buff ; inner webs blackish ; secondaries rufous, vermiculated with black, scarcely forming any bars ; tail-feathers

black, with a few more or less distinct rufous bars towards the ends; crown of head like the back, but rather more strongly mottled with black bars; forehead tawny rufous, the frontal plumes tipped with black; base of bill beset with long plumes, barred with rufous and black; above the eye a dusky blackish spot; sides of face, ear-coverts, and cheeks rufous, barred with black spots, the auricular plumes produced into hair-like tufts; under surface of body rufous, like the upper surface, with large black spots on the recurved plumes of the upper throat; the black vermiculations much more scanty than on the upper parts, with a few broad interspaces of tawny buff on some of the feathers, giving an appearance of light spots here and there; abdomen whitish; sides of body and flanks like the breast, but with scarcely any trace of black vermiculations; thighs tawny rufous, whitish behind; under tail-coverts white, with a slight rufous tinge; under wing-coverts tawny, with paler buff edges; the edge of the wing mottled with blackish; outer coverts uniform blackish; quills below blackish, barred with tawny on the outer web and with pale tawny buff along the inner webs. Total length 7·8 inches, wing 5·3, tail 2·75, tarsus 1·05.

One male bird is almost of the same tawny rufous as the female described, but is a trifle darker. It differs in no important particulars beyond such as is usual in Scops Owls, viz. rather more or less strongly indicated black spots and vermiculations. The second male is very much darker and browner, and has a good many clear indications of tawny-buff spots on the hind neck. In both males a tawny eyebrow is well marked. In the darker male the black markings on the throat are strongly developed, and behind the ear-coverts there are some whitish bars, giving a slight appearance of a ruff. The wings measure 5·2–5·3 inches, which is about the same as in the female, but the size of the male bird is decidedly smaller.

This little Owl, by reason of its yellow bill, comes nearest to the section of the genus *Scops* which embraces *S. balli* and *S. rufescens*, but on comparison it shows but little similitude to either of those species. The tarsus is bare for half

its length behind, but the feathers come down on the front almost to the junction of the toes. It is not quite so thickly feathered as in *S. rufescens*, but is more so than in *S. balli*. Neither of the last-named species has the whitish abdomen of *Scops luciae*, and the rufous coloration and rufous eyebrow also distinguish it from them, as well as the curious bristly elongations of the shafts of the facial plumage, which have induced me to separate the bird as a distinct genus from *Scops*.

[I first met with this small Owl in the dark and gloomy forests which occur in large patches at about 9000 feet on Kina Balu. The male (No. 1973) had the iris greenish yellow, the green showing especially round the pupil; skin round eye pinkish brown; bill pale yellow, almost white; feet dull white and bare. I never heard the note of any small Owl during my residence of a month at my camp at 8000 feet, and I only got three specimens during my eight months' residence on the mountain. I only met with it at all during my second expedition, and fancy that it must be very rare.

The circumstances under which this little Owl was procured were quite different from those under which I found *Scops lempiji*. The latter bird is always to be seen in the neighbourhood of villages up to about 1000 feet, and its call ('Pwok,' whence the native name) is quite a feature of the localities which it frequents. On the other hand, I never heard *H. luciae* utter a sound.]

23. SCOPS LEMPIJI.

Scops lempiji (Horsf.); Sharpe, Cat. B. ii. p. 91; Salvad. Ucc. Born. p. 19 (1874); Sharpe, Ibis, 1879, p. 238; id. P. Z. S. 1881, p. 791.

- a. ♂ ad. Kina Balu, Feb. 1888. Wing 5·65 inches.
- b. ♀ ad. Kina Balu, March 20, 1887. Wing 6·2 inches.
- c. ♂ ad. Kina Balu, March 20, 1887. Wing 6·1 inches.
- d. ♀ ad. Abai, N. Borneo, Feb. 11, 1886. Wing 5·55 inches.

The series exhibits both brown and rufous phases. In the pair procured on the 20th of March the male is rufous

and the female is brown. The female from Abai, on the other hand, is rufous, and the male, shot in February, is very dark brown. These birds show that both sexes partake of the two phases of plumage.

[See my note on *H. luciae* for this Owl, which is a bird of the lower lands. An egg (white; length 1·45 inch, diam. 1·2 inch) was procured with the old bird on the 20th of March, 1888; but as the bird had been captured with gutta-percha, its plumage was too much spoiled for it to be preserved. The natives often catch birds by means of "gutta," which they smear on to a little piece of bamboo. This little stick they fix loosely into a long bamboo, and when they see an Owl or any bird which they can approach silently they lay the "gutta" stick across the back and withdraw the long bamboo. The bird opening its wings with a start attaches them at once to the sticky bamboo-twigg and is caught. Unfortunately the specimens thus obtained are seldom worth preserving.]

24. SCOPS RUFESCENS.

Scops rufescens (Horsf.); Sharpe, Cat. B. ii. p. 102 (1875); Salvad. Ucc. Born. p. 19 (1874); Sharpe, P. Z. S. 1879, p. 314; id. Ibis, 1879, p. 238.

- a. ♀ ad. Benkoka, Sept. 25, 1885. Wing 5 inches.
- b. ♂ ad. Benkoka, Sept. 25, 1885. Wing 4·5 inches.

25. NINOX JAPONICUS.

Ninox japonicus (Bp.); Sharpe, P. Z. S. 1879, p. 325.

- a. ♂ ad. Lawas River, April 9, 1886. Wing 9·3 inches.

26. NINOX BORNEENSIS.

Ninox borneensis (Bp.); Salvad. Ucc. Born. p. 18 (1874).

Ninox scutulata, Sharpe, P. Z. S. 1879, p. 324; id. Ibis, 1877, p. 4, 1879, p. 238; id. P. Z. S. 1881, p. 791.

- a. ♂ ad. Benkoka, Oct. 10, 1885. Wing 6·9 inches.
- b. ♂ ad. Benkoka, Oct. 30, 1885. Wing 6·9 inches.
- c. ♀ ad. Benkoka, Oct. 30, 1885. Wing 6·8 inches.
- d. ♀ ad. Labuan, March 20, 1886. Wing 7·0 inches.

The sexes of this Owl are very nearly of the same size, as will be seen by the dimensions of the wings.

[These small Owls are often seen flying about in the early part of the evening, hawking for dragon-flies. I have shot them with the dragon-flies in their claws.]

27. *SYRNIUM LEPTOGRAMMICUM*.

Syrnium leptogrammicum (T.) ; Sharpe, Cat. B. ii. p. 264 (1875) ; id. Ibis, 1877, p. 4, 1879, p. 238.

Ciccaba leptogrammica, Salvad. Ucc. Born. p. 20 (1874).

- a. No. 345, ♂ ad. Benkoka, Oct. 1, 1885.
- b. No. 346, ♂ juv. Benkoka, Oct. 1, 1885.
- c. No. 347, ♀ ad. Benkoka, Oct. 1, 1885.
- d. No. 404, ♂ ad. Benkoka, Oct. 15, 1885.

[The old male (404) had the iris black and the feet slate-blue. These birds were obtained by my hunters at a time when I was ill, so that I know nothing of the habits of the species. It is probably a resident, as the young male has still a good deal of the nestling-plumage adhering to the neck, so that it was evidently bred in the neighbourhood. I never met with this species in Kinu Balu, or, in fact, on any of the high lands.]

Order PASSERIFORMES.

Fam. CORVIDÆ.

28. *CORONE TENUIROSTRIS*.

Corone tenuirostris (Moore) ; Sharpe, P. Z. S. 1879, p. 246 ; id. P. Z. S. 1879, p. 335 ; id. Ibis, 1879, p. 250.

No. 309, ♂ ad. Benkoka, Sept. 17, 1885. Wing 13·4 inches.
No. 1277, ♀ ad. Kina Balu, April 2, 1887. Wing 13·4 inches.

[Rather a scarce species, and never met with in flocks, but generally seen in pairs. I have noticed it on Kina Balu about the Dusan villages up to 1000 feet.]

29. *DENDROCITTA CINERASCENS*.

Dendrocitta cinerascens, Sharpe, Ibis, 1879, p. 250, pl. viii. ; id. Ibis, 1887, p. 437.

- a. ♂ ad. Kina Balu, April 3, 1888. Wing 5·9 inches.
- b. ♂ ad. Kina Balu, March 17, 1888. Wing 5·8 inches.
- c. ♂ ad. Kina Balu, March 20, 1888. Wing 5·8 inches.

- d.* ♀ ad. Kina Balu, March 1, 1888. Wing 5·8 inches.
e. ♀ ad. Kina Balu, March 9, 1888. Wing 5·75 inches.
f. ♀ ad. Kina Balu, March 15, 1888. Wing 5·4 inches.

The figure in the plate (*l. c.*) is, I regret to say, not accurate. It represents the bird with a purely grey back, and black lores and forehead. At first I thought that Mr. Whitehead had got a second species on Kina Balu, but Professor Westwood very kindly sent me the type specimen of my *D. cinerascens* from Oxford, and I now believe that the Kina Balu bird is the same as that from the Lawas, whence came the type specimen. The following amendments are, however, required in the original description and figure. The pale rusty edgings on the tips of the rump and upper tail-coverts, as well as on the head and wing-coverts, are a mark of immaturity, and fully adult birds show no sign of them. The back is brown on the mantle, not uniform blue-grey as figured. The scapulars are delicate grey at the ends (these are all missing in the type). The lores, nasal plumes, and base of forehead are light brown; this is succeeded by a broad black band which reaches above the eye and extends backwards into a dark brown eyebrow, deeper in colour than the ear-coverts.

[This bird is fairly common in Kina Balu from about 1000 feet up to quite 9000 feet. It frequents the thick jungle-growth which springs up after the rice-crops, and in four or five years reaches a height of from 12 to 20 feet. It is also met with at 9000 feet among the big trees in the thick forest, but it is not so common. It has a loud bell-like note, also a cackling cry like that of our common Magpie. Sometimes four or five may be seen together. It builds in the low jungle, constructing a shallow nest of fine twigs. I found one on the 13th of March, 1888, on a low tree in the scrub. It contained two eggs, very Magpie-like in appearance. Length 1·2 in., diam. 0·9 in. The ground-colour is greenish white, dotted all over with brown markings, which increase in size towards the larger end, where there is a blotch of brown, forming a nearly complete ring. Iris light hazel; bill and feet black. Dusan name "Man-tihak."]

30. *CISSA MINOR*.

Cissa minor, Cab. ; Sharpe, Cat. B. iii. p. 86 (1877) ; id. P. Z. S. 1879, p. 335 ; id. Ibis, 1887, p. 437.

Mr. Whitehead has brought a large series of this beautiful Magpie, exhibiting a rare combination of colour, the head ranging from almost gamboge-yellow to ochreous yellow, and the body-plumage from yellow to yellowish green and emerald-green, and even to bright blue. There seems to be no sequence of plumages from one to the other, but we may take it that the younger birds are more bluish green than the old ones. The smallest nestlings are very blue-green, with so little crest that the black band reaches quite round the nape, and there are no crest-feathers to interrupt its outline. Two nestlings, a little further advanced, have more of a yellow tinge, while a full-grown young bird is, again, bluish green except from the fore neck to the vent, where it is emerald-green. The wings of the young birds are brown or reddish brown, not claret-coloured as in the adults. The males have the wing 5·1–5·3 inches, and the females 5·0–5·3.

[Feet and bill vermilion ; iris lake. *Cissa minor* is fairly common in the same kind of scrub-country as is frequented by the *Dendrocitta*, but, unlike that species, it does not ascend Kina Balu, being confined to a level between 1000 and 3000 feet ; it is, indeed, very rare at the latter elevation, though decidedly common lower down. In the early morning and towards evening the Cissas become very garrulous, one bird whistling to another. The notes are many, the most peculiar being a three-syllabled whistle, from which it gets its Dusan name of "Ton-ka-kis." I often shot specimens in the evening by watching the birds as they called to each other from a long distance. As one bird finished whistling it would fly off, and its place would be occupied by another bird, which would again commence calling to its more distant companions. The natives often brought me nestlings in March, but all attempts to rear them failed, as they perished at night-time, apparently from the cold. The nests were found in the thick undergrowth,

and contained two young birds, in one instance three. The two long centre tail-feathers are often much worn, making it difficult to obtain good specimens.

I greatly doubt the fact of Mr. Treacher's specimen of *C. minor* having really come from Labuan, and think there must have been some mistake in the label. The species is such a thorough mountaineer, and would be so utterly out of place in a barren locality like Labuan, that I fancy it must have really come from the Lawas district.]

31. *CISSA JEFFERYI*. (Plate IV.)

Cissa jefferyi, Sharpe, Ibis, 1888, p. 383.

When a series of this species is laid out side by side with a similar series of *C. minor*, a great difference is noticeable at once in the green colour of the bird, which is very decided, and no yellow of any kind appears on the crown. Sometimes a little bright blue can be seen in the plumage of the back, but never appears on the underparts. Independently of the striking differences in the wings and tail-feathers, pointed out by me in my original description, *C. jefferyi*, as seen in a row of specimens, can at once be distinguished from *C. minor* by the much narrower tips to the tail-feathers, and these pale ends are distinctly greenish white.

The males of *C. jefferyi* have the wing 5·25–5·5 inches, and the females 5·2–5·4. A young bird has a blackish bill, the colour is more dingy, and there is no subterminal black band on the tail at all.

[Bill and feet deep lake-red, much darker than in *C. minor*. Iris white, with a faint pink tinge round the pupil. In the young birds the bill is duller in colour, blackish towards the base.

I first met with this beautiful bird at 8000 feet, and I could tell at once, from its note, that it was a different species from *C. minor*, and concluded that it must be a high-land representative of the latter; but when camping at 3000 feet this species was met with again, so that it is evidently the thick forest which divides the two species. While *C. minor* inhabits the more open and cultivated districts, *C. jefferyi*, even at its lowest altitude, never quits the true

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and contained two young birds, in one instance three. The
~~two long curved tail feathers~~ . . .

forest, and the ranges of the two species never overlap. In April the old birds had their families with them, consisting of two young ones. On the higher slopes of Kina Balu this species was decidedly rarer, and I found it frequenting the twisted and moss-covered trunks near the ground, feeding on snails and probably the small frogs which were numerous. The note is not nearly so clear as that of *C. minor*, but is still a feeble attempt at "Ton-ka-kis."]

32. *PLATYSMURUS ATERRIMUS*.

Platysmurus aterrimus (T.) ; Salvad. Ucc. Born. p. 279 (1874) ; Sharpe, Cat. B. iii. p. 91 (1877) ; id. Ibis, 1877, p. 20, 1879, p. 251.

a, b. ♂ ; *c.* ♀ ad. Benkoka, Sept. 1885.

d. ♂ ad. Kina Balu, March 20, 1887.

[Bill and feet black ; iris crimson-lake. Not at all Crow-like in its habits, frequenting the middle growth in the jungle. Sometimes two or three are seen in company. One specimen was procured on Kina Balu at nearly 1000 feet.]

VII.—*Notes on Birds collected by Dr. G. Radde in the Transcaspian Region.* By H. E. DRESSER, F.Z.S.

(Plate V.)

DR. G. RADDE, of Tiflis, has recently sent to me for examination and identification a selection from a collection of birds obtained chiefly by him during his recent journeys in the Transcaspian Region. He purposes to publish a full account of the birds he observed there in the 'Ornis ;' but it may be of interest to the readers of 'The Ibis' to have a few particulars respecting the small selection sent to me, which contains an example of one new species, a most interesting Shrike, and several other birds of interest.

TURDUS ATRIGULARIS, Temm.

An adult male (Germab, 4th March) is in very fine plumage, but has the black feathers on the throat slightly edged with white, and an adult female (Askabad, 18th February, 1886)

agrees very closely with examples from Turkestan sent to me by the late Dr. Severtzoff, labelled *Turdus mystacinus*.

CINCLUS CASHMIRIENSIS, Gould.

One adult, sex not stated (Schamchor, 5th November), has the underparts nearly similar in coloration to specimens of *Cinclus albicollis* in my collection from Greece, and also to one obtained in the Taurus mountains by Mr. Danford; but I notice that the bill is perceptibly smaller than in any of these specimens.

SAXICOLA FINSCHI, Heugl.

One old male in very fine plumage (Krasnovodsk, 6th February), not differing from examples from Asia Minor.

SAXICOLA DESERTI, Rüpp.

One adult male (Duschak, 17th March) which belongs to the western form and not to the eastern (*S. montana*), as it has not the white on the inner web of the primaries extending to, or nearly to, the shaft.

SAXICOLA MORIO, Ehr.

One adult male (Krasnovodsk, 21st April).

PRATINCOLA CAPRATA.

One male adult (Merv, 14th June).

RUTICILLA PHÆNICURUS (Linn.).

One male (Naphtaberg, 14th April), not differing from specimens from Western Europe.

SYLVIA MYSTACEA, Ménétr.

Two males (Lenkoran, 22nd March); these examples differ appreciably from the specimens from Palestine which I described and figured in the 'Birds of Europe' (i. p. 407, pl. 63), under the name of *Sylvia momus*, in having the underparts, and especially the throat, richly tinged with vinous pink. They have also a pure white line dividing the vinous on the throat from the black, which extends below the eye, and remind one at the first glance strongly of *Sylvia subalpina*. This white line doubtless suggested Ménéttries's name.

SCOTOCERCA INQUIETA (Cretzsch.).

One specimen (Chistchitnyar, 10th May), which is very

distinctly streaked with blackish brown and is probably a bird of the previous year.

LUSCINIOLA NEGLECTA, Hume.

One female (Askabad, 27th July).

PHYLLOSCOPUS TRISTIS, Blyth.

One male (Artyk, 27th March), which agrees closely with Indian specimens.

HYPOLAIS RAMA (Sykes).

Two males (Merv, 5th and 10th June), undistinguishable from Indian specimens.

AEDON FAMILIARIS (Ménétr.).

One specimen (Ain Tschindyr, 7th May).

ACROCEPHALUS DUMETORUM, Blyth.

One male (Dusu-olum, 6th May).

LOCUSTELLA LUSCINIODES (Savi).

One male (Artyk, 27th March). This specimen shows a slight tendency to striation on the throat, and I at first thought it to be *L. fluviatilis*; but on comparison it proves most certainly to be Savi's Warbler, and is most interesting, as it comes from a locality much further east than any from which this species has hitherto been recorded.

PANURUS BIARMICUS (Linn.).

One male (Ast-ara, S.W. Caspian, on the Persian frontier, 10th April), in immature plumage. Dr. Radde thought it might prove to be new, but it is merely the young of the pale eastern form of the Bearded Reedling (*P. sibiricus*), with the black on the back and wings very clearly defined.

PARUS CINEREUS, Bonn. & Vieill.

One male (Gernab, 4th March), which agrees closely in coloration with the specimens from India, but is rather larger in size, measuring: culmen 0.45, wing 2.82, tail 2.6, tarsus 0.8.

PARUS BOKHARENSIS, Licht.

One female (Tedschen, 20th March), which, though as pale in coloration as the palest of a series of specimens of this

race in my collection, has the wing rather shorter than in the above-mentioned specimen of *P. cinereus*, being otherwise about similar in size. The measurements are: culmen 0.45, wing 2.62, tail 2.7, tarsus 0.8.

PARUS PHÆNOTUS, Blanford.

Two males (vicinity of Tiflis, December). The bird from the Caucasus has been treated as a species distinct from the Persian form, and was described by Bogdanoff under the name of *Parus michalowskii*; but a comparison of these two specimens and a female (obtained by Michalowski in the Caucasus, and kindly lent to me by Mr. Seebohm) with the type of *Parus phænotus* in the British Museum convinces me that the two forms cannot possibly be separated, as they are identical in coloration and do not differ in size. These two males measure: culmen 0.48 and 0.5, wing 2.68 and 2.7, tail 2.1 and 2.15, tarsus 0.75 and 0.78.

SITTA SYRIACA, Ehrenb.

One male (Puli-chatum, 5th July), a rather pale example of the large eastern form of the Rock Nuthatch.

MOTACILLA PERSONATA, Gould.

A male (Askabad, 17th February), agrees closely with fig. 3 in vol. x. Brit. Mus. Cat. of Birds, but has a few white markings on the throat.

MOTACILLA CITREOLA, Pall.

A male in full plumage (Molla-kary, 11th April).

MOTACILLA FLAVA, Linn.

A male (Artyk, 28th March), with the white eye-streak very closely defined.

MOTACILLA MELANOCEPHALA, Licht.

A male (Askabad, Geok-tepi Steppe, 1st March).

MOTACILLA RAII, Bp.

A male (Krasnovodsk, 21st April), not differing from specimens from Western Europe.

HTORA, Sykes.

h, 1st May), which on comparison I

find to agree closely with specimens in the British Museum labelled *Lanius assimilis*, Brehm, but which I cannot separate specifically from *L. lahtora*.

LANIUS RADDEI. (Plate V.)

Lanius raddei, Dresser, P. Z. S. 1888, p. 291.

The single specimen of this very distinct little Shrike (Kulkulais, 24th August) was lately exhibited by me and described at a meeting of the Zoological Society of London; but as I then only gave a short diagnosis, it may be advisable to give the following description of this new species:—

Supra canus; dorso pallide fusco cinereo lavato, uropygii lateribus albis; fronte et superciliis albis; linea anguste frontali et loris cum regione oculari et parotica nigris; alis nigricantibus, tectricibus alarum cum secundariis fuscis cinereo marginatis, secundariis majoribus albo anguste terminatis; speculo alari angustiore; rectricibus centralibus nigris, duabus extimis albis, linea centrali nigra versus apicem magis extensa notatis, reliquis nigro notatis; mento, gutture et corpore subtus albis; hypochondriis pallido cervino lavatis. Long. tot. 6·75, culmin. 0·6, al. 3·55, caud. 3·2, tars. 0·9.

This little Shrike may be described as a diminutive Grey Shrike, but it approaches nearest perhaps to *Lanius vittatus*, although it lacks the rich maroon on the back, and the broad frontal band and the chestnut on the flanks. At the same time it shows a tendency to some of these points in having the back washed with brownish grey and the flanks with pale buff.

MUSCICAPA GRISOLA, Linn.

One male (Tee-Beum-basch, 1st August), does not differ from west-European specimens.

MUSCICAPA PARVA, Bechst.

One male (Molla-kary, 15th April).

CARDUELIS CANICEPS, Vig.

One female (Relete-Tchinar, 21st February), not showing any admixture of *Carduelis elegans*.

COCCOTHAUSTES CARNEIPES, Hodgs.

One male (Askabad, 27th July), in somewhat worn plumage.

PASSER DOMESTICUS (Linn.).

One adult male (Askabad, 29th May) of the brightly coloured eastern form (*Passer indicus*), not differing from specimens from India and Northern Africa.

PASSER HISPANIOLENSIS, Temm.

One adult male (Askabad, 18th February) in winter plumage, closely resembling examples in my collection from Northern Africa and Asia Minor.

PASSER AMMODENDRI, Severtzoff.

One adult male (Tedschen, 20th March).

ERYTHROSPIZA OBSOLETA (Licht.).

One male (Kelete-Tchinar, 20th February) and one female (Perewallnaja, 10th April), in full plumage.

EUSPIZA LUTEOLA (Sparrm.).

One adult male (Hodscha-Kala, 9th May).

EMBERIZA CIA, Linn.

One young male (Kopet-dagh, Askabad, 27th July), in first plumage. It is labelled "*Emb. stracheyi?*," but on comparison with specimens in the British Museum there is no doubt that it must be referred to *E. cia* and not to *E. stracheyi*.

EMBERIZA HORTULANA, Linn.

One male (Molla-kary, 15th April), not differing in any respect from typical European examples.

ALAUDA GUTTATA, Brooks.

One male and one female (Baghyr, 31st March and 15th April), which agree closely with examples of *Alauda guttata* from the Indus valley. One of these is labelled "*Alauda triborhyncha?*," but is certainly not referable to that species, which is larger and more nearly allied to *Alauda arvensis*, whereas *Alauda guttata* is more nearly allied to *Alauda gulgula*.

AMMOMANES DESERTI (Licht.).

One female (Takyr Hill, 9th April), in the grey phase of plumage.

GALEBITA CRISTATA (L.).

One male (Oelstani, 19th June), of the form described by Hume as *G. magna*.

OTOCORYS PENICILLATA (Gould).

Two males (Lenkoran, 9th February and 7th December), both of which are undoubtedly referable to true *O. penicillata*.

OTOCORYS BRANDTI, Dresser.

One male (Krasnovodsk, 5th February).

CYPSELUS AFFINIS, J. E. Gray.

One female (Pulichatum, 5th July), which closely agrees with Indian specimens.

CAPRIMULGUS ÆGYPTIUS, Licht.

One male (Karadja-Batyr, 2nd May), labelled *Caprimulgus arenicola*, Severtzoff, which species is, however, not separable from *C. ægyptius*, and the present example agrees closely with one from Egypt.

PICUS POELZAMI, Bogd.

Two females (Lenkoran, 21st January and 24th November).

PICUS LEUCOPTERUS, Salv.

One female (Tedschen Steppe, 22nd March), agreeing with typical *P. leucopterus* and not referable to the form described by Severtzoff under the name of *Picus leptorhynchus* (cf. 'Ibis,' 1875, p. 489).

SCOPS BRUCEI (Hume).

One female (Amu-darya, 10th March), labelled *Scops obsoleta*, Cab. I have compared it with the specimens in the Hume collection in the British Museum, with which it agrees in every respect, and as Hume described it in 1873 ('Stray Feathers,' i. p. 8), his name has priority over that of Cabanis, who described it in 1874 (Journ. für Orn. 1874, p. 126) from specimens in the Berlin Museum obtained by Eversmann in Bokhara and by Ehrenberg in Syria.

ACCIPITER RADIUS (Gm.).

One male in fully adult plumage (Astrabad, 24th April), which on comparison with examples of *Accipiter brevipes*

and *A. badius* in my collection I refer without hesitation to the latter species.

ÆGIALITIS GEOFFROYI (Wagl.).

One male (Kachka-kala, 15th April), just assuming the breeding-plumage.

ÆGIALITIS ASIATICA (Pall.).

One male (Lenkoran, 4th April), in full breeding-plumage.

VIII.—*An Attempt to Diagnose the Suborders of the Ancient Ardeino-Anserine Assemblage of Birds by the aid of Osteological Characters alone.* By HENRY SEEBOHM.

IN my last paper (*Ibis*, 1888, pp. 415–435) I endeavoured to diagnose the suborders of the great Gallino-Gralline group of birds by the aid of their osteological characters alone. I propose in the present essay to attempt to point out the distinguishing osteological features of the suborders of the ancient Ardeino-Anserine assemblage of birds. It is supposed that these two orders (as we may provisionally call them) are separated from each other by a great gulf, the Gallino-Gralline birds being regarded as schizognathous, and the Ardeino-Anserine birds as desmognathous. This distinction is not, however, a very satisfactory one. In the Gallinæ, for example, some of the Cracidæ, when old, become more or less desmognathous by the union of the maxillopalatines with an ossified nasal septum, a form of desmognathism scarcely distinguishable from that of some of the Vultures and Owls. The narrowness of the line which separates the two orders is further shown by the remarkable similarity of the basipterygoid processes of the Anseres and the Gallinæ. Scarcely less remarkable is the prolongation and recurvation of the mandible behind its articulation with the quadrate, which is very similar in the two groups, though not exclusively confined to them. So close, indeed, are the Anseres to the Gallinæ that it has even been a disputed point (*Garrod, P. Z. S.* 1876, p. 189) to which of them the Palamedeidæ should be referred. It must also be con-

ceded that whilst the Anseres resemble the Gallinæ in many points, they differ from the Herodiones and their allies in an extraordinary manner. In the highly developed condition of the newly-hatched young the Anseres agree with the Gallinæ and differ from the other desmognathous groups. The thin maxillo-palatine plates of the Anseres and of the Gallinæ, though coalesced in the former and not in the latter birds, are in many respects more like each other than the thick spongy maxillo-palatine masses of the Herodiones and Steganopodes. Nevertheless the line between the Anseres and the Ciconiidae is so narrow that it is a disputed point to which group the Phœnicopteridæ belong (Gadow, J. f. Orn. 1877, p. 382).

It seems to me that the gaps which separate the orders of birds from each other are so very narrow, that it will require much sifting of the characters by which the various suborders may be diagnosed before satisfactory combinations can be discovered for the diagnosis of the larger groups.

The Ardeino-Anserine order of birds may be divided into six suborders, which may be distinguished from each other by the following osteological characters:—

a. Angle of mandible produced and recurved.

*a*¹. Bifurcation of nasals holorhinal.

*a*². No ribs furnished with uncinatè processes PALAMEDEÆ.

*b*². Several ribs furnished with uncinatè processes.

*a*³. Basipterygoid processes articulating with the pterygoid as near the palatines as possible ANSERES.

*b*³. No basipterygoid processes PHŒNICOPTERI.

*b*¹. Bifurcation of nasals schizorhinal PLATALEÆ.

b. Angle of mandible truncated.

*c*¹. Tarsus much longer than the outer digit HERODIONES.

*d*¹. Tarsus shorter than the outer digit STEGANOPODES.

PALAMEDEÆ.

The Screamers are very remarkable birds. Only three or four species are known, which are all peculiar to South America. They appear to be archaic species, which differ from every other existing bird in a very important character.

They have no uncinatè processes to any of their ribs. Every other known living bird has uncinatè processes on several of its ribs*. Otherwise uncinatè processes are not only characteristic of, but almost peculiar to birds, being only found elsewhere in a very few reptiles. The Screamers appear to be one of the connecting-links between the Gallinæ and the Anseres. These two suborders are unique amongst birds in the character of their pterygoids, which articulate close to the palatines with very conspicuous basipterygoid processes on the rostrum of the basisphenoid. They also agree in having the angle of the mandible produced beyond its articulation with the quadrate and much recurved. The eggs of the species belonging to the two groups present many points of resemblance, and in the condition of the newly hatched young they agree absolutely; but the Gallinæ are schizognathous and the Anseres are desmognathous. The desmognathism of the Anseres differs, however, so markedly from that of the Steganopodes and Herodiones, that it is easy to believe that it has been independently acquired, and consequently that the points of resemblance between the Gallinæ and the Anseres may have been inherited from a common ancestor.

The Palamedeæ may be diagnosed by the absence of uncinatè processes to the ribs.

They further possess the following osteological characters:—

1. They are heterocœlous in the articulation of their dorsal vertebræ.

2. They are holorhinal in the bifurcation of their nasals.

3. They have only one xiphoid process on each side of the median process of the posterior margin of the sternum.

4. They possess basipterygoid processes which articulate with the pterygoids not far from the middle of those bones.

5. They have no lateral occipital fontanelles.

6. The angle of the mandible is much produced and recurved.

* The gigantic, but wingless, *Hesperornis regalis*, the remains of which are found in the cretaceous deposits of North America, had uncinatè processes to its ribs.

7. The palatines resemble most closely those of the Phœnicopteri, the laminæ being widely separated.

8. The maxillo-palatines most closely resemble those of the Anseres, being thin plates fused with each other across the palate for their entire length.

Within the order they may be diagnosed not only by the absence of uncinate processes to the ribs, but by the 4th character. The combination of the 5th and 6th characters will distinguish them from every family except from the Cygnidæ.

Inasmuch as they agree with the Anseres in the 1st, 2nd, 3rd, 6th, and 8th characters, and with some of them in the 5th, they appear to be closely related to that group. In the other two characters, the 4th and 7th, they most resemble the Phœnicopteri, which are probably their next nearest relatives, though they differ from them in the 5th character.

ANSERES.

The Ducks, Geese, and Swans form a well-marked group of birds, which differ from all the other groups of the order in having basipterygoid processes which articulate with the pterygoids as near the palatines as possible. In this respect they differ from every other group of birds, with the single exception of the Gallinæ.

They possess the following osteological characters :—

1. They are heterocœlous in the articulation of their dorsal vertebræ.

2. They are holorhinal in the bifurcation of their nasals.

3. They have only one xiphoid process on each side of the median process of the sternum.

4. They have basipterygoid processes on the rostrum of the basisphenoid which articulate with the pterygoids as near as possible to the palatines.

5. They may or may not have lateral occipital fontanelles.

6. The angle of the mandible is much produced and recurved.

7. The laminæ of the palatines are widely separated from each other, and are much narrower posteriorly and much broader anteriorly than in any of the allied suborders.

8. The maxillo-palatines, like those of the Palamedeæ, are thin plates fused with each other across the palate for their entire length.

The combination of the 3rd and 4th characters is absolutely diagnostic, and within the order the combination of the 2nd, 4th, and 6th characters is equally diagnostic.

In their geographical distribution they are almost cosmopolitan, and comprise two families, many genera, and about 180 species. They are very closely related to the Palamedeæ, and are probably not distantly allied to the Phœnicopteri.

The Cygnidæ differ so widely in their osteological characters from the Anatidæ that it is impossible to regard them as part of the same family. The number of cervical and cervico-dorsal vertebræ varies in the Cygnidæ from 23 to 25. No other living birds are known to possess so many: in the Anatidæ and in the Plataleæ and Herodiones their number varies from 16 to 19. The Cygnidæ further differ from the Anatidæ in having, when adult, no lateral occipital fontanelles* and in having very few dorsal vertebræ furnished with ventral processes.

The Phœnicopteridæ agree with the Anatidæ in the two first-mentioned of these characters, and with the Cygnidæ in the third, but they differ from both in other important characters.

PHÆNICOPTERI.

The Flamingoes are intermediate between the Anseres and the Herodiones, and appear to be closely related to the Palamedeæ and the Plataleæ. They possess the following characters:—

1. They are heterocœlous in the articulation of their dorsal vertebræ.
2. They are holorhinal in the bifurcation of their nasals.
3. They have only one xiphoid process on each side of the median process of the posterior margin of the sternum.

* This is a very unsafe character to rely upon, as young birds of many species of Swans show large lateral occipital fontanelles, and in very old Ducks they are sometimes ossified.

4. They have no basipterygoid processes*.
5. They have two lateral occipital fontanelles.
6. The angle of the mandible is much produced and recurved.

7. The laminae of the palatines are wide and widely separated, very closely resembling those of the Palamedeæ.

8. The maxillo-palatines are fused with each other along their whole length, and are rather more spongy than in the Anseres, but not nearly so much so as in the Herodiones.

Within the order the combination of the 2nd, 4th, and 6th characters is diagnostic.

It is supposed that the newly hatched young of the Phœnicopteri differ from those of all the Gallino-Gralline order of birds (the Columbæ alone excepted), and also from those of the Palamedeæ and Anseres, in being so helpless that they have to be fed for some time in the nest by their parents; but the truth of this supposition has never been conclusively proved.

The Phœnicopteri scarcely number a dozen species, which are distributed in tropical America and in the tropics of the Old World west of Calcutta.

The Flamingoes are neither Storks nor Herons. They agree with the former in the 1st, 2nd, and 5th, and with the latter in the 3rd, 4th, 6th, 7th, and 8th characters, hereafter given as distinguishing these two families. They are unquestionably very near allies of the Herodiones, but their osteological characters suggest their still closer relationship to the Anseres.

PLATALEÆ.

The Spoonbills and Ibises are so closely related that they must be associated together in one suborder, which presents the following characters:—

1. They are heterocœlous in the articulation of their dorsal vertebræ.

* These are often represented by rudimentary prickles, which do not approach the pterygoids, and are situated at some distance from the palatines.

2. They are schizorhinal in the bifurcation of their nasals.
3. They have usually two xiphoid processes on each side of the median process of the posterior margin of the sternum.
4. They have no basipterygoid processes.
5. They have two lateral occipital fontanelles.
6. The angle of the mandible is slightly produced and recurved.

7. The palatines almost coalesce for a short distance after their articulation with the pterygoids; but as soon as they become expanded the laminae are at a distance from each other, in this respect resembling those of the Ciconiidae and Fregatidae.

8. The maxillo-palatines resemble those of the Herodiones and Steganopodes in being large and spongy, and fused with each other and the maxillary processes of the palatines.

Within the order the 2nd character is diagnostic.

The Plataleae number about thirty species, which are distributed throughout the tropical and subtropical continents of the world.

Of the eight characters which are hereafter given as distinguishing the Herons from the Storks, the Spoonbills and Ibises all agree with the Herons in the 3rd, 4th, and 5th, and with the Storks in the 1st, 2nd, 6th, 7th, and 8th. In fact the Herons differ more *inter se*, and so do the Storks, than the Spoonbills do from the Ibises. The shape of the rostrum seems to be of very little taxonomic importance. Still less importance must be attached to the number of xiphoid processes on each side of the median process of the posterior margin of the sternum; the Madagascar Spoonbill (*Platalea telfairii*) appears to be aberrant in this respect, differing from all the other Spoonbills and Ibises in having only one lateral process on each side.

It is extremely doubtful whether the Ibises have any right whatever to be regarded as a distinct family from the Plataleidae. Except in the characteristic shapes of their bills, they present no differences of importance in their osteology.

The Plataleae seem to be closely related both to the Anseres and to the Herodiones, especially to the Ciconiidae.

HERODIONES.

The Storks and the Herons form a well-defined group of birds, possessing the following characters:—

1. They are heterocœlous in the articulation of their dorsal vertebræ.

2. They are holorhinal in the bifurcation of their nasals.

3. They have only one xiphoid process on each side of the median process of the posterior margin of the sternum.

4. They have no basipterygoid processes.

5. They have no lateral occipital fontanelles.

6. The angle of the mandible is truncated.

7. The palatines either almost or quite coalesce for a short distance after their articulation with the pterygoids, but when they become expanded the laminæ separate.

8. The maxillo-palatines are large and spongy, and almost or quite coalesce with each other and with the maxillary processes of the palatines.

The 6th character is sufficient to distinguish the Herodiones from all the other suborders, except from the Steganopodes. To complete the diagnosis, it is necessary to go outside the eight characters enumerated above. The fact that the tarsus happens to be shorter than the outer toe is a sufficient character (though an accidental one) to distinguish the Steganopodes from the Herodiones. A much better character is the fact that in the Steganopodes the quadrate is placed so far behind the postfrontal that it causes the exoccipital to extend behind the foramen magnum, giving a remarkably square appearance to the back of the skull, which is also observable in that of the supposed Ratite ancestor of the Colymbidæ (*Hesperornis*).

The Herodiones number about 90 species, of which about 20 are Ciconiidæ and about 70 Ardeidæ, but the two families are very closely related. Nature has not drawn a very definite line between them; many of the Storks approach the Herons in one or two of their characters, and many of the Herons possess some Stork-like characters. The principal osteological points in which the Storks differ from the Herons are as follows:—

CICONIIDÆ.

1. The temporal fossæ are obscurely defined.
2. There is no interclavicular process within the angle of the furculum.
3. The episternal process is very small or absent.
4. The coracoids do not overlap at their base.
5. The carotid arches are not complete on any of the cervical vertebræ.
6. The cervical vertebræ are comparatively short.
7. The number of cervical vertebræ is 17.
8. The ilium in front of the acetabulum is comparatively broad.

ARDEIDÆ.

1. The temporal fossæ are very strongly marked.
2. The interclavicle projects conspicuously within the angle of the furculum.
3. The episternal process is very conspicuous.
4. The coracoids overlap at their base.
5. The carotid arches are complete on half a dozen of the cervical vertebræ.
6. The cervical vertebræ are very long.
7. The number of cervical vertebræ is 19.
8. The ilium in front of the acetabulum is comparatively narrow.

Of these eight peculiarities none are characteristic of every species. All that can be said is that every species of Stork agrees with a majority of the characters in the left-hand column, and every species of Heron agrees with a majority of the characters in the right-hand column. The inference to be drawn from these facts is that the differentiation of the two families is a comparatively recent event. In their osteological characters *Tantalus*, *Balæniceps*, and *Scopus* are Storks, but *Cancroma* is a Heron. That *Balæniceps* in tropical Africa, and *Cancroma* in tropical America, should have independently developed "boat-bills," is a remarkable but instructive fact. Not only do these curiously-billed birds belong to different genera, but to different families. *Cancroma* is a typical Heron, possessing every one of the eight characters enumerated above, except that in the 6th character it approaches the Storks. On the other hand, *Balæniceps* is a Stork, and not a Heron, in seven out of the eight characters. In the 5th character it is a Heron, but this peculiarity (that of the two ventral processes on many of the cervical vertebræ meeting to form a carotid arch) appears to be of very little taxonomic value in the Herodiones. In *Ciconia leucocephala*

they meet on one vertebra, and amongst the Ardeidæ the genus *Nycticorax* is aberrant; the two ventral processes seldom quite meeting. *Scopus* is a Stork in all points except the 4th; the coracoids slightly overlap*.

The Herodiones are distributed throughout the temperate and tropical regions of both hemispheres.

STEGANOPODES.

The Pelecans and their allies possess an external character which distinguishes them from all other birds. The hallux is united by a web to the inner toe, so that these birds are completely web-footed. They possess the following osteological characters:—

1. In the articulation of their dorsal vertebræ they may be either heterocœlous or opisthocœlous.

2. They are holorhinal in the bifurcation of their nasals.

3. They may have either one or two lateral xiphoid processes on each side of the median process of the posterior margin of the sternum.

4. They have no basipterygoid processes.

5. They have no lateral occipital fontanelles.

6. The angle of the mandible is truncated.

7. The palatines may or may not coalesce with each other along the whole length of their expanded parts.

8. The maxillo-palatines are large and spongy and coalesce with each other and with the maxillary processes of the palatines.

They may be distinguished from all the other suborders by the 6th character, except from the Herodiones, which have the tarsi much longer than any of the toes.

The Steganopodes contain only half a dozen genera; but, with one exception, these differ so much from each other, that each genus may fairly claim to be placed in a distinct family. With the exception of *Plotus*, which appears to be very nearly allied to *Phalacrocorax*, every genus differs in at

* The Hammer-head further resembles the Storks and differs from the Herons in flying with its neck stretched out, instead of being folded up until the head comes between the shoulders.

least two important characters from each of the other genera. In the following key each genus is treated as a family, but the only distinction between the Plotidæ and the Phalacrocoracidæ is that in the latter the two ventral processes on the 7th to the 13th cervical vertebræ do not meet to form a carotid arch, but they bend towards each other almost sufficiently to do so. In fact the difference between *Phalacrocorax* and *Plotus* appears to be less than that between *Phalacrocorax* and *Fregata* or *Phaethon*. In the latter the ventral processes are short and parallel.

Clavicle ankylosed to sternum.	{	<i>Fregatidæ</i> .	}	Several cervical vertebræ with carotid arches.
		<i>Pelecanidæ</i>		
		<i>Sulidæ</i>		
		<i>Plotidæ</i>		
Nasal aperture large. Palatines not coalesced.	{	<i>Phalacrocoracidæ</i> .	}	Dorsal vertebræ with ventral processes.
		<i>Phaethontidæ</i>		

In the following key three perhaps less important characters are used to diagnose the families, but *Plotus* is regarded as part of the Phalacrocoracidæ. Which of the two modes of treating *Plotus* is the more scientific must be left for future investigation to determine.

All the dorsal vertebræ heterocœlous.	{	<i>Phaethontidæ</i> .	}	Subclavicular process articulating with scapular, but not with clavicle.
		<i>Pelecanidæ</i>		
		<i>Fregatidæ</i>		
Humerus not pneumatic.	{	<i>Phalacrocoracidæ</i> .	}	
		<i>Sulidæ</i> .		

It is an interesting fact that the egg of *Phaethon* is spotted, and consequently differs from the eggs of all the other genera of the Steganopodes, but the significance of this fact is lessened by the knowledge that *Platalea* is equally aberrant in its suborder.

Phalacrocorax, *Plotus*, and *Sula* are so absolutely similar

in the shape of their palatines that they appear to be more nearly related to each other than to the other genera. The ankylosis of the palatines extends as far as the lachrymals and throughout the whole length of the expanded part. *Fregata* does not differ much in the shape of the palatines at their posterior end, and they are ankylosed as far as the lachrymals, though the distance is much shorter in consequence of the comparative shortness of the frontal; but the lateral expansion of the palatines continues far beyond the lachrymals. In *Phaethon* and *Pelecanus* the palatines are narrowed for some distance from the pterygoids, and expanded for some distance after they separate. In *Pelecanus* the separation takes place in front of the lachrymals, and in *Phaethon* behind them; but having regard to the difference in the length of the bill, the resemblance is very close. *Phaethon* differs, however, from *Pelecanus* in having no absolute coalescence between the two palatines, even where they adjoin.

The Steganopodes appear to be a well-defined group of birds, but, like the Grallæ, they seem to be the remains of a once much larger group, now only represented by comparatively isolated families. They appear to be most nearly allied to the Herodiones. They are distributed throughout the tropical and temperate regions of both hemispheres, and are numerous in individuals, but their total number of species is very small, probably not much exceeding 50.

The families comprising the Ardeino-Anserine Order of Birds may be arranged as follows:—

PALAMEDEÆ.

Palamedeidæ.

ANSERES.

Cygnidæ.

Anatidæ.

PHŒNICOPTERI.

Phœnicopteridæ.

PLATALEÆ.

Plataleidæ.

HERODIONES.

Ciconiidæ.

Ardeidæ.

STEGANOPODES.

Phalacrocoracidæ.

Sulidæ.

Pelecanidæ.

Phaethontidæ.

Fregatidæ.

To what extent the Diurnal Birds of Prey and the Owls differ from the Herodiones and Steganopodes, and whether there are sufficient grounds for placing them in a distinct order, must be the subject of a future paper.

IX.—On an apparently undescribed Species of Owl from Anjouan Island, proposed to be called *Scops capnodes*. By JOHN HENRY GURNEY.

THE Norwich Museum has for some time possessed three specimens of the Scops Owl inhabiting Anjouan Island, in the Comoro group, which have hitherto been catalogued in the collection under the head of *Scops rutilus*, Pucher.; but my attention has been recently called to certain differences, in my opinion specific, between the Anjouan Scops and the Madagascar *Scops rutilus*.

The Norwich Museum contains three Madagascar specimens of *Scops rutilus*, and, through the kind intervention of Professor Newton, I have had the opportunity of examining four others, and also two of the Anjouan Scops, from the Museum at Cambridge.

I have thus had the opportunity of comparing five specimens of Scops from Anjouan with seven from Madagascar, and, as the result of this comparison, I find that in all the

Anjouan specimens the plumage is much darker than in any from Madagascar, and is also less mingled with white; it is especially noticeable that the pale portion of the lower scapulars, which is conspicuously white in six of the Madagascar birds, and is coloured light rufous in the seventh (an unusually rufous specimen), is much less extended in four of the Anjouan birds, and in the fifth, a very dark specimen at Cambridge (referred to below as B), is absent altogether; it is white in only two of the Anjouan birds, and that to a very limited extent; and in the remaining two it is cross-barred in two alternate shades of brown.

The notch-like spots on the outer webs of the primaries, which are white in most specimens of *S. rutilus*, are decidedly smaller in the Anjouan Scops, and are a fulvous brown in the five specimens which I have examined.

The average wing-measurement in the Anjouan Scops is a little longer than in *S. rutilus*, and the lower portion of the tarsus, which is feathered in *S. rutilus*, is bare in the Scops from Anjouan Island.

Of the five Anjouan specimens which I have measured, the tarsi are bare in two cases for $\cdot 40$ of an inch, in two for $\cdot 50$, and in one for $\cdot 55$, whereas six of the examples of *S. rutilus* which I have examined are feathered to the root of the toes, and in the seventh the feathering only falls short of that point by $\cdot 15$ of an inch.

As regards the measurements of the Anjouan specimens, which unfortunately are not sexed, the tarsus is 1.25 inch in two examples, 1.30 in one, 1.40 in another, and 1.50 in the remaining instance; the middle toe is $\cdot 70$ (*s. u.*) in one case, $\cdot 80$ in two, and $\cdot 85$ in the two others. The wing-measurement is 6.70 inches in three cases and 6.80 in the two others.

I may give, for comparison, the wing-measurements of the seven specimens of *S. rutilus*, as under:—

♂ 6.20 inches; ♂ 6.40; four not sexed, 6.40, 6.45, 6.50, 6.50; ♀ 6.55.

I ought, however, to add that in 'The Ibis,' 1869, p. 452, I recorded five Madagascar specimens of *S. rutilus* in the

Paris Museum as "varying in the wing from 6 to 6.80 inches."

The following description was taken from one of the specimens in the Cambridge Museum, which I may call specimen A :—

The upper surface of the head, including the ear-tufts, which are very slightly developed, is entirely brown, the frontal feathers being blackish brown in the centre, but freckled with a paler brown on the sides, the feathers of the hinder head, nape, cheeks, and throat being finely cross-barred with the same two shades of brown disposed alternately, with some intermediate brown freckles on the nape, and the lower portion of the disk being surrounded by a black band.

The mantle is cross-barred and freckled similarly to the nape, but more coarsely on the lower scapulars, and more finely on the rump and upper tail-coverts; the upper surface of the rectrices is blackish brown, with pale brown freckles on the lower and outer portions of the feather, these freckles assuming the form of irregular transverse bars on the outer rectrices.

The primaries and secondaries are blackish brown, finely freckled with lighter brown towards the end of the feather, and with the outer webs slightly marked on the external edge with small notch-like spots of pale fulvous brown; the tertials resemble the secondaries in their general coloration, but are more largely freckled with pale brown.

The entire under surface is freckled like the mantle, but more coarsely, and with a larger admixture of pale luteous brown, the shaft-marks of the feathers being black.

Specimen B, also in the Cambridge Museum, resembles A, but is slightly darker throughout, with the exception of a single white feather on the nape, which is clearly abnormal.

In this specimen the pale brown notch-like spots on the external edge of the outer web of the primaries and secondaries are so small as to be almost obsolete.

Specimens C, D, and E are preserved in the Museum at Norwich.

Specimen C closely resembles B, but has a dull white bar, apparently abnormal, across one of the rectrices.

D is like A, but the plumage is scarcely so dark, and on the under surface is slightly mingled with rufous.

In this specimen the feathers on the crown of the head exhibit two pairs of pale brown spots on each feather, and the feathers of the throat are a rich brown, transversely barred with a darker brown.

E resembles D, but has the brown of the mantle, including the wing-coverts, and also of the entire under surface, somewhat mingled with rufous.

In this specimen the feathers immediately adjacent to the upper mandible are white, and the black band which edges the lower portion of the disk is very conspicuous.

The general aspect of the Anjouan Scops is decidedly fuliginous, a circumstance which leads me to propose for it the specific title of *capnodes*, from the Greek *καπνώδης*, *smoky*; and I think that *Scops capnodes* may be safely admitted as a valid addition to the catalogue of the Striges.

X.—On *Scolopax rosenbergi* and *S. saturata*.

By T. SALVADORI, C.M.Z.S.

WHEN I was preparing my 'Ornitologia della Papuasie e delle Molucche,' wishing to be as exact as possible, I visited the principal museums of Europe, in order to examine the existing types of the species included by me in the above-mentioned work. Thus, when in Leyden, I examined the type specimen of *Scolopax rosenbergi*, Schleg., from New Guinea, and compared it very carefully with two specimens of the allied Javan species, *Scolopax saturata*, Horsf. I must say that, although I perceived, as it had occurred also to Schlegel, that the two species were nearly related, still it never came into my head that they were specifically identical.

Again, when Mr. Laglaize sent to Count Turati, of Milan, a specimen of *S. rosenbergi* collected by Bruijn's hunters on

the Arfak Mountains, I had the opportunity of comparing it with a specimen of *S. saturata* from Java, received from Mr. Franck, of Amsterdam, in 1847, and preserved in the Zoological Museum of Turin, and I still thought that they belonged to two different species.

Lastly, when Dr. Guillemard had a third specimen of the New-Guinea bird, he put it down (P. Z. S. 1885, p. 665) as *S. rosenbergi*, apparently without the least idea that it could be the same as *S. saturata*.

Consequently it was a great surprise to me to find, first in 'The Ibis' (1887, p. 283), and then in the recent work, 'The Geographical Distribution of the Family Charadriidæ,' p. 506, that the two birds are considered by Mr. Seebohm specifically identical.

On a previous occasion (Ibis, 1886, p. 128), in "A Review of the Species of the Genus *Scolopax*," Mr. Seebohm admits the *Scolopax rosenbergi* as distinct from *S. saturata*, but afterwards (Ibis, 1887, p. 283) he tells us that at the time he wrote his paper on the genus *Scolopax* he had not had the opportunity of comparing specimens of *S. rosenbergi* from New Guinea with those of *S. saturata* from Java, and that when that opportunity presented itself he found "them to be identical." It seems that in his last work Mr. Seebohm has slightly modified his opinion, as, instead of being so positive as before, he is content to state that the "two birds *seem* to be specifically identical." Thus it appears that he was not quite sure of the identity; and if so, it seems that it would have been more safe not to lump together two birds which, when carefully examined by others, had been recognized as specifically distinct.

Mr. Seebohm, to meet the serious objection arising from the very peculiar distribution of *Scolopax saturata* when taken, as he does, to be the same as *S. rosenbergi*, which is only known from the Arfak Mountains in Western New Guinea, supposes the probability of the bird living also "in the intervening islands"* , or that it may "be only a winter visitor

* In one of the groups of the intervening islands, in that of Obi, lives *Scolopax rochusseni*, Schleg., a very distinct species.

to the Malay Archipelago, breeding northwards in Eastern Thibet or Yunnan" (!).

All this falls to the ground if, instead of making suppositions, we examine carefully the Javan and the New-Guinea birds, as we shall then be easily convinced that they belong to two distinct species, each having a different and very limited geographical distribution.

I asked the authorities of the Museo Civico of Milan, where Count Turati's collection is now preserved, to send me the specimen of *S. rosenbergi* mentioned in my work (vol. iii. p. 236) for inspection, and I also asked Dr. Guillemard to send me his specimen. Both are now before me, together with a specimen of *S. saturata* from Java, a very fine one, mentioned above as being preserved in the Museum of Turin.

But before proceeding to state the differences between the two birds, I consider it opportune to make a census of the known specimens of the two species. Both birds are very rare in collections. Mr. Seebohm states that of the Javan bird only three specimens exist:—(1) Horsfield's type, moth-eaten and devoid of feathers, in the British Museum* ; (2 and 3) two examples in the Leyden Museum, collected by Boië in Java. To these, to my knowledge, we must add a fourth specimen, in the Derby Museum, mentioned by Blyth (*Ibis*, 1865, p. 36, note); a fifth, killed by Mr. Goldman on Mount Salak, in Western Java, mentioned and carefully described by Dr. Vorderman (*Nat. Tijdschr. v. Nederl. Ind.* xlv. p. 107, 1885); and a sixth, in the Museum of Turin.

Of the New-Guinea bird only three specimens are known: 1st, the type, in the Leyden Museum, sent by Baron von Rosenberg; 2nd, the specimen in Turati's collection, killed by Bruijn's hunters on the Arfak Mountains, and received through Mr. Laglaize; 3rd, Dr. Guillemard's specimen, a female, also collected on the Arfak Mountains by Bruijn's hunters, which, as Dr. Guillemard has already stated, corresponds with the description in my '*Ornitologia*.'

* On a previous occasion (*Ibis*, 1887, p. 284) Mr. Seebohm stated that the type specimen "cannot now be found" in the British Museum.

Comparing the Javan and New-Guinea birds together, what strikes one immediately is that the New-Guinea bird is much darker, having the black spaces between the reddish or light bars much wider. Also Mr. Büttikofer, to whom I have applied for his opinion, after having compared the specimens in the Leyden Museum, writes, insisting on the blackish bars on the upper and lower surface being broader in the New-Guinea bird, and giving to it a darker appearance.

Another striking difference is in the fore neck, where the dark bands are more arched, giving a scale-like appearance in the New-Guinea bird, while in the Javan one the bands are straighter and more regularly transverse.

Besides the above differences there are also minor ones :—

1st. The black line from the eye to the base of the bill is wider in the New-Guinea bird.

2nd. The light bands on the underparts are much whiter in the New-Guinea bird.

3rd. The breast along the middle is whiter in the New-Guinea bird than in the Javan one.

4th. The remiges, especially the primaries, in the New-Guinea bird are blacker, with only a few reddish spots towards the tip of the outer web, while in the Javan bird all the remiges are more spotted with reddish on the outer web.

5th. The primary-coverts are less spotted with reddish colour in the New-Guinea than in the Javan bird.

6th. Also the under wing-coverts are blacker and less banded in the New-Guinea bird.

7th. The tail is much the same in both birds, only darker in the New-Guinea one.

I cannot find that there is much difference in the proportions of the remiges, which, in both specimens of the New-Guinea birds and in one from Java before me, are as follows :—the first a little shorter than the second, the third very little longer than the second.

To my eyes and in my judgment the two birds are perfectly distinct. I add the synonymy of the two species and a diagnostic description of both.

SCOLOPAX SATURATA, Horsf.

Scolopax saturata, Horsf. Trans. Linn. Soc. xiii. p. 191 (1821) (type examined); id. Zool. Res. in Java, pl. 63 (1824) (Mount Prahu, 7000 ft., Java); Less. Compl. de Buff. ii. p. 680 (1837); Rchb. Grallatores, tab. cccliv. f. 2780 (1851) (ex Horsfield); Bp. Compt. Rend. xliii. p. 579, n. 167 (1856); Schleg. Handl. Dierk. i. p. 432, pl. vi. f. 71 (1857); id. Dierent. p. 248 (1864); id. Mus. P.-B. *Scolopaces*, p. 3 (Java, Boiè) (1864); Blyth, Ibis, 1865, p. 36 (note, Derby Museum); Sclat. et Salv. P. Z. S. 1869, p. 419; G. R. Gr. Hand-list, iii. p. 54, n. 10353 (1871); Gieb. Thes. Orn. iii. p. 467 (1877); Vorderm. Nat. Tijdschr. Ned. Ind. xlv. p. 107 (1885) (Mount Salak); Seebohm, Ibis, 1886, p. 127; id. Ibis, 1887, p. 283 (partim); id. Geogr. Distr. Charadr. p. 506 (partim), pl. xxi. * (1887).

Gallinago saturata, Steph. Gen. Zool. xii. p. 59 (1829); G. R. Gr. Gen. B. iii. p. 573, n. 26 (1846).

Rusticola javanica, Less. Tr. d'Orn. p. 555 (1831).

Scolopax russata in Mus. Derb., Blyth, Ibis, 1865, p. 36 (note).

Rufo et nigro transfasciolata, subtus pallidior, pectore medio albicante; remigibus omnibus fusco-nigris, exterius rufo maculatis; tectricibus remigum primariorum fusco-nigris, rufo maculatis; subalaribus fusco-nigris, rufo fasciolatis. Long. tot. circa 300 mm., al. 154 mm., caud. 52 mm., rostri 76 mm., tarsi 35 mm.

* I have been greatly puzzled by the figure in Mr. Seebohm's work, as it does not at all give one the idea either of *S. saturata* or of *S. rosenbergi*, so that the thought struck me that it had been taken from an indifferent figure of *S. saturata* in Schlegel's 'Handleiding tot de beoefening der Dierkunde,' pl. vi. f. 71. To ascertain this point, I wrote to Mr. Keulemans, asking him from which specimen the plate of *S. saturata* had been drawn. I think it important to quote his answer: "The figure of *Scolopax saturata* to which you refer in your letter was taken from two different drawings—the first, a water-colour drawing, made at the Leyden Museum by a painter who cannot paint birds; the second from the small figure of Schegel's 'Handl. Dierkunde' (as you suggested)." After this we may declare that the plate in Mr. Seebohm's work, not made from an actual specimen, is a very bad one, as completely wanting in characters, and not giving at all the idea of the bird.

Scolopax saturata is confined to the high mountains of Java ; it has been found only on Mount Prahu (7000 feet high) and on Mount Salak, where, according to Dr. Vorderman, Mr. Goldman killed one specimen on the 10th October, 1882. I have failed to ascertain in which part of Java Boiè obtained the two specimens in the Leyden Museum. Most likely from the same source is the specimen in the Museum of Turin.

SCOLOPAX ROSENBERGI, Schleg.

Scolopax rosenbergi, Schl. Ned. Tijdschr. Dierk. iv. p. 54 (1871) (Nova Guinea) (type examined) ; Rosenb. Reist. naar Geelvinksb. p. 144 (1875) ; Gieb. Thes. Orn. iii. p. 467 (1877) ; Rosenb. Malay Archip. pp. 563, 595 (1879) ; Salvad. Ann. Mus. Civ. Gen. xviii. p. 331, n. 48 (1882) ; id. Orn. Pap. e Mol. iii. p. 235 (1882) ; Guillem. P. Z. S. 1885, p. 665 (♀, Arfak Mountains) ; Seeb. Ibis, 1886, p. 128.

Scolopax saturata, part., Seeb. Ibis, 1887, p. 283 ; id. Geogr. Distr. Charadr. p. 506 (partim) (1882).

Scolopax S. saturatæ, Horsf., similis, sed nigricantior et pectore medio purius albo, colli præsertim antici fasciis fuscis magis arcuatis, abdominis fasciis transversis albis vix rufescentibus, remigibus primariis fere omnino fusco-nigricantibus, nonnullis in pogonio externo, apicem versus, vix rufo maculatis, tectricibus remigum primariarum fusco-nigricantibus, fere immaculatis, et subalaribus fusco-nigris vix fusco fasciatis, diversa. Long. tot. circa 300 mm., al. 158–154 mm., caud. 59–54 mm.; rostr. 84–74 mm.; tarsi 38–35 mm.

This bird has been only found in the north-west part of New Guinea, and all the three specimens known were collected on the Arfak Mountains.

XI.—Notices of recent Ornithological Publications.

1. *Allen on the Birds of the American Museum of Natural History.*

[Visitors' Guide to the Collection of Birds in the American Museum of Natural History. J. A. Allen, Curator. 8vo. New York: 1888.]

Those of our readers who have not been to America may require to be informed that the American Museum of Natural History is in New York, and is, next to that of the U.S. National Museum at Washington, we suppose, the most extensive in the country. The series exhibited in the "Bird-Hall," we are told in Mr. Allen's 'Guide,' numbers about 11,000 specimens. It consists chiefly of three important collections, obtained by purchase, namely:—(1) the Elliot Collection of North-American Birds; (2) the Maximilian Collection, *i. e.*, that of Prince Max. of Neu Wied; and (3) the Verreaux Collection of about 3000 specimens, selected by Mr. Elliot from the stores of that formerly well-known firm of commercial naturalists. Besides this mounted series there is a large series of about 30,000 specimens in skins, made up mainly of:—(1) the Lawrence Collection, lately obtained from our distinguished correspondent, Mr. G. N. Lawrence, which consists of about 12,000 specimens, and the value of which can scarcely be overrated, from its containing all that ornithologist's numerous types; (2) the Elliot Collection of Humming-birds, containing the specimens used by Mr. Elliot in preparing his well-known monograph; (3) the Smith Collection from Matto Grosso, Brazil; and (4) the Scott and Mearns Collection of Arizona birds. We may, indeed, well congratulate Mr. Allen upon the material which he has at his command to work upon.

After this useful preliminary information the Handbook proceeds to give a summary account of the various groups of the order Aves, as illustrated in the American Museum. The arrangement adopted is quite in accordance with the most modern views, and begins with the oldest and lowest types, ending with the Passeres, which are made the 23rd order of the subclass "Eurhipiduræ." The information given appears to be usually accurate, but we observe a slip (p. 43) where the Acromyodian Passeres are identified with the Clamatores, and the Mesomyodians with the Oscines. Nor are we quite prepared to admit that the nests of *Collocalia* are "mixed with algæ," or that the Palamedeidæ "swim well." The 'Guide' closes with an account of the "Bird-groups,"

nearly 40 in number, which adorn the "Bird-Hall," and correspond to the series of mounted groups illustrative of different species well known to us at South Kensington.

2. *Allen on the Flight of Birds.*

[On the Structure of Birds in relation to Flight, with special reference to recent alleged discoveries in the Mechanism of the Wing. By J. A. Allen. Trans. New York Acad. Sci. vii. p. 89.]

Mr. Allen's paper on the much-vexed question of the bird's wing gives a good summary of our knowledge of the subject, but does not, we think, add much to what was previously known. We quite agree with him that "in the present state of avian anatomy it is extremely rash for any one to claim the discovery of a new muscle in the wing or in any part of the bird's body till he has made himself thoroughly familiar with the work of his predecessors"! That there is, however, still work of a very telling description to be done on the bird's wing may be easily seen by reference to Mr. Wray's recently published paper on this subject (P. Z. S. 1887, p. 343), so do not let us discourage any one from taking up the subject.

3, 4. *Barboza du Bocage on Birds from St. Thomas, West Africa.*

[Sur quelques Oiseaux de l'Ile St. Thomé, par J. V. Barboza du Bocage. Jorn. Acad. R. d. Sci. d. Lisboa, Num. xlviii. p. 211.]

Oiseaux nouveaux de l'Ile St. Thomé, par J. V. Barboza du Bocage. *Op. cit.* p. 229.]

In the first paper Prof. Barboza du Bocage gives an account of a collection of 13 skins sent from the island of St. Thomas by Mr. F. Newton to the Lisbon Museum. In the second he describes as new *Scops scapulatus*, *Amblyospiza concolor*, and *Columba arquatrix*, var. *thomensis*, based upon specimens received in another collection from the same collector, and adds a list of 24 other species, also represented in the last collection.

5. *Beckham on the Birds of South-western Texas.*

[Observations on the Birds of South-western Texas. By C. W. Beckham. Proc. U.S. Nat. Mus. 1887, p. 633.]

This is a long and apparently valuable paper. Mr. Beckham spent the latter half of December 1886 and the first four months of 1887 collecting and studying the birds in four different localities in South-western Texas, most of his observations, however, having been made at San Antonio. At first he intended to record only the results of his own experience, but subsequently determined to embody in his memoir the notes of other observers in the same district. After preliminary remarks upon the physical features of the four localities, their botany, and the works of previous collectors, amongst which is specially cited Mr. Dresser's paper published in this Journal in 1863, Mr. Beckham gives notes upon the 283 species as yet ascertained to belong to the avifauna of South-western Texas.

6. *Bendire on Polioptila californica.*

[Description of the Nest and Eggs of the Californian Black-capped Gnat-catcher (*Polioptila californica*, Brewster). By Capt. Charles E. Bendire, U.S.A. Proc. U.S. Nat. Mus. 1887, p. 549.]

Capt. Bendire describes the newly-discovered nest and eggs of this species from specimens taken near San Bernardino, Cal. The nest-structure is like that of *P. plumbea* of Arizona, and differs radically from that of the well-known *P. cærulea* of the Eastern U.S.

7. *Bendire on Nests and Eggs from Arizona.*

[Notes on a Collection of Birds' Nests and Eggs from Southern Arizona Territory. By Capt. Charles E. Bendire, U.S.A. Proc. U.S. Nat. Mus. 1887, p. 551.]

Capt. Bendire describes a collection of nests and eggs made by Lieut. H. C. Benson near Fort Huachuca, in S.E. Arizona, about 18 miles from the Mexican boundary. Eight of these belong to species the nests and eggs of which are new to the Museum collection. *Psaltiriparus plumbeus* is a summer

visitor in this locality, and builds a gourd-shaped nest, with a side entrance, in the low oak-bushes, apparently somewhat in the style of *Ægithalus pendulinus*. As in that species, the eggs are pure white.

8. *Berlepsch on new or rare Birds from Bogota.*

[Beschreibung eines neuen Colibri und Bemerkungen über eine Collection von Vogel-bälgen aus der Umgegend von Sta. Fé de Bogota in Colombia. Von Hans v. Berlepsch. Zeitschr. f. Orn. 1887, p. 177].

Graf v. Berlepsch gives an account of a collection of about 200 bird-skins lately received by Herr Nehrkorn, of Riddagshausen, direct from Bogota. It contained a single example of a new Humming-bird, *Cyanolesbia nehrkorni*, already shortly characterized (J. f. O. 1887, p. 326), but now more fully described and figured. It also contained an example of another Humming-bird of the genus *Bourcieria*, which the author refers doubtfully to *B. assimilis*, Elliot, said to be from Ecuador, but at the same time provides with a second name, in case of need, "*B. excellens*." This is also figured. This species comes nearest to *B. prunellei*. Graf v. Berlepsch then proceeds to describe a dark variety of *Chrysolampis mosquitus* as a possibly new species, "*C. infumatus*," and to make remarks on *Pyrrhophæna iodura* and *Agyrtria viridissima terpna*. A complete list of the 91 species represented in the collection is added. In the footnotes to this list the Bogota form of *Helidoxa leadbeateri* is distinguished as *H. l. parvula*, and the Bogota form of *Chrysuronia ænone* as *C. æ. longirostris*.

9. *R. Blasius on the Birds of Brunswick.*

[Die Vogelwelt der Stadt Braunschweig und ihrer nächsten Umgebung. Von Dr. Rudolf Blasius. Jahresb. Ver. f. Naturw. zu Braunschweig, v. p. 59.]

Dr. Rudolf Blasius gives us an account of his long and intimate acquaintance with the birds of his native city of Brunswick and the surrounding district. A previous paper on the same subject was prepared by the same author in 1862, and printed in the 'Journal für Ornithologie.' Twenty

years' close attention to the subject has enabled him to make large additions. The list now comprises the names of 216 species. One of the most interesting of these is the Great Sedge-Warbler (*Acrocephalus turdoides*), which breeds regularly in the ponds of Riddagshausen. There some years ago the Editor of this Journal had the pleasure of taking with his own hands, under the friendly guidance of the ornithologists of Brunswick, the specimens of the nest and eggs of this fine bird which are now in our National Collection.

10. *R. Blasius on Mergus anatarius.*

[*Mergus anatarius*, Eimbeck, ein Bastard zwischen *Mergus albellus*, Linné, und *Glaucion clangula*, Linné. Von Dr. Rudolf Blasius. Monatschr. d. deutsch. Ver. z. Schutze d. Vogelw. Jahrg. xii. p. 377.]

Dr. R. Blasius gives us a full account of this singular hybrid between the Smew and the Golden-eye, of which four examples are now known. The first specimen, now in the Brunswick Museum, was obtained in 1885, and called by Eimbeck *Mergus anatarius*. A second was procured in Denmark in 1843, a third in Sweden in 1881, and a fourth has recently been described by Herr O. Wolschke, which was shot in Mecklenburg in 1865. Coloured figures are given of two of the specimens.

11. *W. Blasius on Birds from Palawan.*

[Die Vögel von Palawan. Nach den Ergebnissen der von Herrn und Frau Dr. Platen bei Puerto Princessa auf Palawan (Philippinen) im Sommer 1887 ausgeführten ornithologischen Forschungen übersichtlich zusammengestellt. Von Dr. Wilh. Blasius. Ornis, 1888, p. 301.]

This is the full text of the article referred to by Dr. W. Blasius in his letter in last year's 'Ibis' (1888, p. 372). Dr. Blasius gives an account of the collection made in Palawan by Dr. and Mrs. Platen in 1887, and sent to Herr Nehrkorn. It contains representatives of 130 species, and nearly doubles the number of Palawan birds known to the author. It is unfortunate that there should have been a "concurrency" between Dr. Blasius and Mr. Sharpe on this subject, but such things will occasionally happen. Both

writers were naturally anxious to vindicate the claims of their respective collectors to their discoveries. Besides the six new species described in the 'Braunschweigische Anzeiger,' of which Dr. Blasius has already spoken in his letter, *Turnix haynaldi* and *Carpophaga aenea palawanensis* are now described as new for the first time.

12. *W. Blasius on Birds from Great Sanghir.*

[Vögel von Gross-Sanghir. Von Dr. Wilh. Blasius. Braunschweigische Anzeiger, 1888, no. 9, Jan. 11th.]

Dr. W. Blasius kindly sends us a copy of the 'Braunschweigische Anzeiger' for Jan. 11th, 1888. The report there given of the sitting of the "Verein für Naturwissenschaft" on Jan. 5th contains short characters of three new species of birds discovered by Dr. and Mrs. Platen in the island of Great Sanghir. These are named *Ninox macroptera*, *Zosterops nehrkorni*, and *Criniger platenæ*.

Dr. Blasius has since published an elaborate memoir on all the birds obtained by Dr. and Mrs. Platen in the Sanghir Islands. See 'Ornis,' 1888, p. 527, "Die Vögel von Gross-Sanghir."

13. *Brusina on the Birds of Croatia.*

[Ornitološke bilježke za Hrvatsku Faunu. Svezanj Prvi. Sakupio S. Brusina. Glasnik hrv. Naravoslovnoga Društva. (Soc. Hist.-Nat. Croatica, iii. p. 129.).]

We regret that ignorance of the Slavonic languages prevents us from saying more than that this paper seems to refer mainly to the occurrence of three species in Croatia, namely, *Syrrhaptes paradoxus*, *Fratercula arctica*, and *Alca torda*.

14. *Forbes on Attempts to reach the Owen Stanley Peak.*

[On Attempts to reach the Owen Stanley Peak: a Report to the Royal Scottish Geographical Society on the New Guinea Expedition. By Henry O. Forbes. (Reprinted from the Scottish Geographical Magazine for August 1888.).]

All persons interested in New Guinea (amongst whom all

ornithologists must be included) will read with interest Mr. Forbes's account of his unfortunately unsuccessful efforts to reach the summits of the Owen Stanley range. Now, at all events, we have for the first time something like a correct map of the territory adjacent to the future capital of our new Colony. We can see the position of the Warirata cliffs of the Astrolabe range, where "the traveller first heard the curious and distinctive *wauk* of Raggi's Paradise-bird, and the more melodious and whistle-like call of the lovely King-bird." We can also see the exact position of Sogeri, where his collection of birds was made, and where he resided from October 1885 to May 1886.

15. *J. G. on the Birds of the Stonyhurst District.*

[Birds of the Stonyhurst District. By J. G. Stonyhurst Magazine, No. xxxix., July 1888.]

We have been favoured by some unknown friend with a copy of the 'Stonyhurst Magazine' for July last. It contains an article by "J. G." on the birds that have occurred within 10 miles of Stonyhurst—a district shown exactly in the neat little map which accompanies it. The species treated of are 157 in number. The nomenclature of the B. O. U. list is adhered to.

16. *Hartlaub on Bird-collecting during Scientific Expeditions.*

[Vögel. Von Dr. G. Hartlaub. Aus Neumayer's Anleit. z. wissenschaftl. Beobachtung. auf Reisen. Zweite Aufl. Berlin: 1888.]

Dr. Hartlaub has prepared the chapter relating to the collection and observation of birds for the second edition of Dr. Neumayer's 'Traveller's Guide to Scientific Observations,' in a way which, we trust, will induce many travellers of the Fatherland to take up our favourite subject. A list of the principal handy works on the birds of different countries is appended.

17. *Hartlaub on Nigrita arnaudi.*

[Aus den ornithologischen Tagebüchern Dr. Emin Pascha's. (Mitgetheilt von Dr. G. Hartlaub.) J. f. O. 1887, p. 310.]

Dr. Hartlaub has extracted from Emin Pasha's ornitho-

logical journal some interesting notes on the life and breeding-habits of a Weaver-bird (*Nigrita arnaudi*), concerning which Heuglin (Ornith. N.O.-Afr. i. p. 341) seems to have fallen into some errors. These, being derived from Emin Pasha's own observations, must be deemed authentic.

18. *Kempen on Abnormal Plumages in Birds.*

[Sur une série de Mammifères et d'Oiseaux d'Europe présentant des Anomalies ou des Variétés de coloration. Par Ch. van Kempen. Bull. Soc. Zool. de France, 1888, p. 103.]

M. Kempen gives an account of the specimens of about 70 European species of birds in his collection, which are albinos or partly albinos, or otherwise abnormally coloured.

19. *Lawrence on a new Thrush.*

[Description of a new Species of Bird of the Genus *Catharus* from Ecuador. By G. N. Lawrence. Proc. U.S. Nat. Mus. 1887, p. 503.]

A Thrush of the genus *Catharus* from Cayandeled, Western Ecuador, presented to Mr. Lawrence by Graf v. Berlepsch, and determined by him as *C. fuscater*, Lafr., is described as new and named *C. berlepschi*.

20. *Meyer and Helm's Report on the Ornithological Observing-Stations for Saxony for 1887.*

[III. Jahresbericht (1887) der ornithologischen Beobachtungstationen im Königreich Sachsen, bearbeitet von Dr. A. B. Meyer und von Dr. F. Helm. Abh. u. Bericht d. k. zool. u. anthropol.-ethnograph. Mus. Dresden, 1888-89.]

This, we think, must be allowed to be one of the most complete and elaborate reports of the kind yet issued, and to reflect great credit on the care and patience of its compilers. It begins with lists of 134 observers who contributed notices for 1887, and of 17 who had observed in 1886 but not in 1887, and of 91 new observers. The "General Part," which follows, describes the 122 stations at which observations were made, and gives a summary account of the weather.

The "Special Part" takes each species individually, one

after the other, and summarizes the observations on it made by the various observers. Finally, we have a special appendix on the occurrences of *Syrrhaptes paradoxus* in Europe in 1888. As we have said before (*Ibis*, 1888, p. 406), it is a pleasure to turn to such a well-ordered report as this, where reference to what is required is made so easy. We rather regret, however, that the map is not repeated.

21. *Sir E. Newton's Presidential Address.*

[Address, by the President, Sir Edward Newton, to the Members of the Norfolk and Norwich Naturalists' Society. *Trans. Norf. and Norw. Nat. Soc.* iv. p. 537.]

After the ordinary topics of a presidential address have been disposed of, Sir Edward Newton discusses a subject that will greatly interest most of his brother Members of the B. O. U.,—the disappearance of our native Accipitres. "It is plain" to him that "in this island the extirpation of the smaller birds of prey is almost as fully accomplished as was that of the larger kinds some years ago." This leads him on to the kindred question of the extinction of certain species of birds in oceanic islands, and especially in the Mascarene group, where he was so long resident. Most interesting details are given on this subject, and as an appendix we have a complete "list of the birds of the Mascarene Islands, including the Seychelles." The distribution of the species in the different islands is shown in every case, and the extinct and peculiar species are designated, as well as those of accidental occurrence. This very useful list is, we trust, but the precursor of a still more useful memoir on the Mascarene ornithology, which, if we are correctly informed, is in a forward state.

22. *Picaglia on Pallas's Sand Grouse in Italy.*

[Intorno ad una recente invasione del *Syrrhaptes paradoxus*, Ill., [per] Luigi Picaglia. *Il Panaro*, Ann. xxvii. Num. 160. Modena, 11 June, 1888.]

Prof. Picaglia records the occurrence of a male specimen

of *Syrrhaptes paradoxus* in May last in the province of Mantua.

23. *Prejevalsky's Fourth Journey.*

[Retvertoye puteshestviye v tsentrailnoi Azii Ot Kiaktii na istoki joltoi réki, izslédovaniye Sévernoi okrainii Tibeta, i put cherez Lob-nor pv basseinu Tarima.

A Fourth Journey into Central Asia, from Kiakhta to the Sources of the Yellow River, Exploration of the Northern Borderland of Tibet, and a Route *viâ* Lob-nor along the Basin of the Tarim. By N. M. Prejevalsky, with 3 maps, 29 photographs, and 3 woodcuts; published by the Imperial Russian Geographical Society. St. Petersburg: 1888.]

In the present volume General Prejevalsky, whose untimely death we must all much deplore, continues his observations on the central and most remote parts of the continent of Asia. His fourth expedition differed in no essential particular from those previously undertaken by him, and his description again takes the form of a narrative. He has, however, added two chapters, one at the beginning and one at the end of his book, which have no immediate reference to his travels. In the former of these he treats of the method of travel adopted by him on his expeditions; the second contains his conclusions, more or less epitomized, on the inhabitants of Central Asia.

As on previous occasions, the author has been assisted in preparing for publication and classifying the scientific results of his observations by several learned specialists. His latitudes and longitudes have been computed at Pulkova by V. K. Dellen; his altitudes by General Scharnhorst; his maps have been drawn at the military topographical department of the Staff Corps; the drawings and photographs of his companion, Robarofsky, have been photographed by M. Klassen; his geological collections have been determined by Professor Inostrantsef; the plants by Academician C. I. Maximovitch; the mammalia by E. A. Büchner, Curator of the Zoological Museum of the Academy of Sciences; the reptilia by Academician A. A. Strauch; and the fishes by Assistant-curator Hertsenstein.

Casting our eyes over the chapter-headings, we find many

names of places which appeared in his former books:—“Mongolia and the Country of the Tangutans,” “From Kuldja to Lob-nor,” and, in the description of his third journey into Central Asia, “From Zaisan *viâ* Hami to Tibet” &c. (as yet untranslated). He again crosses the great Gobi and describes its characteristics and the life of the Mongols. He passes through the province of Kan-suh to Koko-nor and Tsaidam, traces the sources of the Hoang-ko in lakes Jaring-nor and Oring-nor, leads his Cossacks once more across the salt desert of Tsaidam and approaches the great mountains, previously unexplored, which support the high plateaux of Northern Tibet. Having left the Tibetan mountains, the author revisits Lob-nor and the basin of the Tarim, describing at some length the southern confines of the Tarim desert, the mountains near Keria, and his homeward route to the Thian-Shan, *viâ* Khoten and Aksu.

Frequent references to the birds observed during his journey occur throughout the work (see pp. 131, 133, 149, 164, 223, &c.).

24. *Ramsay's List of Australian Birds.*

[Tabular List of all the Australian Birds at present known to the Author, showing the Distribution of the Species over the Continent of Australia and adjacent Islands. By E. P. Ramsay. Sm. 4to. Sydney: 1888.]

Gould's ‘Handbook’ gave the number of species of birds known to be found in Australia in 1865 as 672. Mr. Ramsay's ‘Tabular List’ now increases the Australian ornis to 760 species, omitting doubtful ones. Among the 88 additional species it is curious that one only belongs to a new genus, namely, *Scenopæus dentirostris*, a very distinct form of Bower-birds. Mr. Ramsay's tables show the distribution of the species over Australia very clearly, and his map is likewise of much value. Numerous notes and references are added. We are glad to see it announced in the Preface that the author has in preparation a complete work on the birds of Australia. So far as we can make out, the following species of birds are named for the first time in this list:—*Platycercus pennanti*, var. *nigrescens*, from Queensland; *Ædicne-*

mus longipes (if distinct from *Æ. grallarius*), from N.W. Australia, and *Ninox albaria*, from Lord Howe's Island, most nearly allied to *N. novæ-zelandiæ*.

25. *Regalia on the Claws of Birds.*

[Unghie ai diti I. e II. della Mano in Uccelli italiani, [per] E. Regalia. Processo Verbale d. Soc. Toscana d. Sci. Nat. 1888, p. 86.]

We are glad to find another naturalist working at the claws of the bird's digit, on which subject much more investigation is still required. Sig. Regalia divides claw-bearing birds into three categories:—(1) Those with a claw on the pollex only; (2) Those with a claw on the index only; (3) Those with a claw on the pollex and index. He has examined only Italian species. His second category is based on a somewhat doubtful case of a Bittern (*Botaurus stellaris*) in which the last phalanx of the second digit had a small mass of substance with the "aspetto di un' unghia." The third category is of great interest, although we cannot quite agree with the author's statement that the existence of a claw on the second digit has hitherto been recognized only in the Ratitæ. The following Italian birds are given as having claws, more or less developed, on the pollex and index:—*Phanicopterus roseus*, *Nettion crecca*, *Fulix ferina*, *Grus communis* (?), *Totanus fuscus*, *T. nebularius*, *Gallinago cælestis*, *Colymbus arcticus*, *C. septentrionalis*, and *Podiceps fluviatilis*. Sig. Regalia seems not to be acquainted with our articles on the claws and spurs of birds published in this Journal for 1886 (pp. 147 & 300).

26. *Report of the Ornithologist of the U.S. Department of Agriculture.*

[Report of the Ornithologist, C. Hart Merriam, M.D., for the year 1887. From the Annual Report of the Department of Agriculture for the year 1887. 8vo. Washington: 1888.]

Dr. C. Hart Merriam's second annual Report consists of a short general statement of the work done in the division of Economic Ornithology and Mammalogy of the Department of Agriculture, and of a number of special reports annexed thereto. The general work performed in 1887 consisted

chiefly in the collection of facts to show the relations of certain birds and mammals to agriculture, horticulture, and forestry, and in preparing for publication memoirs on the English Sparrow and on Bird-Migration in the Mississippi Valley. The special reports are:—(1) On the Food of Hawks and Owls; (2) On Experiments on Poisons used for the purpose of destroying Bird-life; (3) On some of the Results of a Trip through Minnesota and Dakota; and (4) On the Depredations caused by Blackbirds and Gophers in Iowa and Minnesota. Of these No. 3 is by Mr. V. Bailey, all the rest by Dr. A. K. Fisher. The accounts given of the examination of the stomachs of more than 1000 Hawks and Owls show some very interesting results. Taking them as a whole, it will be seen that out of 983 specimens of stomachs of these birds containing food, which were examined, no less than 528 (64·4 per cent.) contained the remains of mice only, and 241 of insects only. The value of the Accipitres and Striges to mankind is thus pretty evident at a glance.

The so-called “Blackbirds,” of the depredations of which the farmers of Dakota and Minnesota complain, appear to be mostly *Xanthocephalus xanthocephalus* and *Agelæus phæniceus*. Frankland’s Gull (*Larus franklini*) in Dakota is stated to feed largely on grasshoppers.

27. Report of the Coburg Society for the Protection of Plants and Animals.

[Erster Bericht über die Thätigkeit des Thier- u. Pflanzenschutz-Vereins für das Herzogthum Coburg. 8vo. Coburg: 1888.]

We are pleased to see that the Coburghers have formed a Union for the protection of their native plants and animals and to receive a copy of their first Report. Among the appendices is a list of the native birds, prepared by Herr A. Hoffman and Dr. E. Baldamus.

28. Report of the Committee on Observing-Station for German Birds.

[X. Jahresbericht (1885) des Ausschusses für Beobachtungsstationen der Vögel Deutschlands. J. f. O. 1887, p. 337.]

The tenth Report of the Committee for carrying on the

work of observation of birds in the different parts of the German Empire is a bulky treatise of some 300 pages, which will, no doubt, require the close attention of students of the European ornithology. Mr. Paul Matschie's appended remarks on the vexed question of the distribution of *Corvus corone*, *C. cornix*, and *C. frugilegus* in Northern Germany, which are illustrated by a well-executed map, are of special interest.

29. *Ridgway on the Genus Dendrocincla.*

[A Review of the Genus *Dendrocincla*, Gray. By Robert Ridgway. Proc. U.S. Nat. Mus. 1887, p. 488.]

Mr. Ridgway was induced to take up this difficult group in order to effect the determination of two species of *Dendrocincla*, of which specimens were contained in a small collection from the Lower Amazons, and has had the advantage of the examination of the types in the Lafresnaye Collection, now in the Museum of the Boston Society of Natural History. Twelve species of *Dendrocincla* are recognized, of which three are now described for the first time, namely, *D. lafresnaye* (Upper Amazons?), and *D. rufo-olivacea* and *D. castanoptera* from Diamantina, Lower Amazons. Besides these twelve species, three others are mentioned as "not examined."

30. *Ridgway on Catharus berlepschi.*

[Remarks on *Catharus berlepschi*, Lawr. By Robert Ridgway. Proc. U.S. Nat. Mus. 1887, p. 504.]

Mr. Ridgway confirms the distinctness of *Catharus berlepschi*, Lawrence (*v. s.*), from *C. fuscater*, Lafr., of which he has examined the "*type*" from Colombia and a good series from Costa Rica.

31. *Ridgway on new Central-American Birds.*

[Descriptions of some new Species and Subspecies of Birds from Middle America. By Robert Ridgway. Proc. U.S. Nat. Mus. 1887, p. 505.]

Mr. Ridgway describes as new *Catharus fumosus* from

Costa Rica and Veragua, *Mimus gracilis leucophæus* from Cozumel, *Harporhynchus longirostris sennetti* from Texas, *Campylorhynchus castaneus* from Guatemala and Honduras, *Thryothorus rufalbus castanonotus* from Nicaragua and Colombia, *Microcerculus daulias* from Costa Rica, *Dendrornis lawrancei* from Panama, and *D. lawrencii costaricensis* from Costa Rica.

32. Ridgway on the Generic Name *Uropsila*.

[Note on the Generic Name *Uropsila*, Scl. & Salv. By Robert Ridgway. Proc. U.S. Nat. Mus. 1887, p. 511.]

Mr. Ridgway proposes to alter the generic term *Uropsila* to *Hemiura*, because *Uropsilus* was used previously for a genus of mammals. If this be necessary, can we continue to employ *Picus* and *Pica* (as Mr. Ridgway does himself) and many other terms which nearly resemble one another?

33. Ridgway on new Birds from the Lower Amazons.

[Descriptions of new Species and Genera of Birds from the Lower Amazon. By Robert Ridgway. Proc. U.S. Nat. Mus. 1887, p. 516.]

These new species are based on specimens contained in a collection made by Mr. C. B. Riker, of New York, at Diamantina, near Santarem, on the Lower Amazons. They are named *Thryothorus herberti*, *Thryophilus tænioptera*, *Cyphorhinus griseolateralis*, *Colopteryx* (gen. nov., loco *Colopteri prius usitati*) *inornatus*, *Ornithion napæum*, *Tyrannulus reguloides*, *Attila viridescens*, *Thamnophilus inornatus*, *Heterocnemis* (?) *hypoleuca*, *Dichrozona* (gen. nov. ex fam. *Formicariidarum*) *zononota*, *Phlogopsis bowmani*, *Rhegmatorhina* (gen. nov. ex fam. *Formicariidarum*) *gymnops*, *Dendrornis fraterculus*, *Dendrocolaptes obsoletus*, and *Zenaida jessieæ*.

34. Ridgway on the Genus *Psittacula*.

[A Review of the Genus *Psittacula* of Brisson. By Robert Ridgway. Proc. U.S. Nat. Mus. 1887, p. 529.]

Mr. Ridgway's review of the genus *Psittacula* commences

with some general remarks on the vexed question of the variation of the plumage in the sexes and ages of these little Parrots. His "key to the species," which follows, contains short characters by which both sexes of the eleven species and subspecies may be recognized. Of these four are now described as new, namely:—*Psittacula passerina vivida*, from Bahia; *P. insularis*, from the Tres Marias Islands; *P. exquisita*, from Colombia; and *P. deliciosa*, from Diamantina, Lower Amazons. Dr. Hartlaub has pointed out (*Ibis*, 1888, p. 493) that Mr. Ridgway appears to have overlooked* his lately-published article on *Psittaculæ* (*P. Z. S.* 1885, p. 614), and that *P. exquisita*, Ridgway = *P. spengeli*, Hartl., and *P. deliciosa*, Ridgw. = *P. cyanochlora*, Hartl. *P. insularis* ("similar to *P. cyanopygia*, but larger and darker") can hardly be considered more than a subspecies.

35. *Ridgway on Birds from the Caribbean Islands and Honduras.*

[Catalogue of a Collection of Birds made by Mr. Chas. H. Townsend on Islands in the Caribbean Sea and in Honduras. By Robert Ridgway. *Proc. U.S. Nat. Mus.* 1887, p. 572.]

The collection was made in the islands of Grand Cayman, Swan Island, and Ruatan, and in two localities in Honduras. In Grand Cayman, 175 miles south of Cuba, which had been already visited by Mr. Cory's collector in 1886, examples of thirteen species were obtained. Of these *Dendræca auricapilla* (a form of *D. petechia*) is described as a new species, and *Columbigallina passerina insularis* as a new subspecies. In Swan Island, which lies 200 miles south-west of Grand Cayman, examples of thirty species were found. Of these *Contopus vicinus* (allied to *C. virens*) and *Butorides saturatus* (like *B. virescens*, but darker!) are described as new. In Ruatan only three species were met with. At Truxillo, in Honduras, examples of 56 species were procured. Of these Mr. Ridgway separates a *Thamnophilus* (of the *doliatus* section) as *T. intermedius*, a *Centurus* as *C. santacruzi pauper*, subsp. nov., and a Pigeon of the genus *Engyptila*, allied to

* Cf. 'Auk,' 1888, p. 460.

E. rufinucha, as *E. vinaceiventris*; the rest are mostly well-known Central-American species. On the Segovia River, Honduras, Mr. Townsend made a larger collection, embracing examples of 99 species, of which the following are described as new :—*Pitylus poliogaster scapularis*, *Aimophila rufescens discolor* (if different from *A. rufescens* ?), *Sturnella magna inexpectata*, *Thalurania townsendi*, *Colinus nigrogularis segoviensis*, *Porzana exilis vagans*, and *Tigrisoma excellens*. In a footnote a new Pigeon, *Columba purpureo-tincta*, is based on a skin from Demerara in the U.S. National Museum, which has hitherto been referred to *C. nigrorostis*.

36. Ridgway on a new *Psaltiriparus*.

[Description of a new *Psaltiriparus* from Southern Arizona. By Robert Ridgway. Pr. U.S. Nat. Mus. 1887, p. 697.]

Psaltiriparus santaritæ, from Southern Arizona, is similar to *P. plumbeus*, but smaller, and the male has a more or less distinct blackish line along the sides of the occiput, as in the female of *P. lloydi*.

37. Salvadori on Bonaparte's 'Fauna Italica.'

[Le date della pubblicazione della 'Iconografia della Fauna Italica' del Bonaparte ed Indice delle specie illustrate in detta opera per Tommaso Salvadori. Boll. d. Mus. d. Zool. e. Anat. Comp. d. R. Univ. d. Torino, vol. iii. n. 43.]

In 1888 Count Salvadori favoured this Journal with a useful list of the exact dates of publication of the plates of birds issued in the different fascicules of Bonaparte's 'Iconografia della Fauna Italica' (*Ibis*, 1888, p. 320), concerning which there had been previously many inexact statements made. In the present paper the information is extended to the other classes of vertebrates, and an alphabetical Index is added of all the species figured in Bonaparte's work, so that there is no longer any excuse for error in quotations on this subject.

38. *Salvadori on the Occurrence of Pallas's Sand Grouse in Italy.*

[Il Serratto in Italia nella primavera del 1888 per Tommaso Salvadori Boll. Mus. d. Zool. e. Anat. Comp. d. R. Univ. d. Torino, vol. iii. n. 47.]

Count Salvadori puts together in this useful paper the records of the occurrences of *Syrrhaptes paradoxus* in Italy in April and May 1888. The first instance observed was on April 24th, at Montagnena, near Padua, the last at Orvieto, on May 28th. About 74 individuals altogether were noticed on fifteen occasions. Most of the occurrences took place in the north-east of Italy—Venetia, Romagna, and the Marches, — but two of them were on the western slope. The most southern occurrence noted was at Fano, on the Adriatic. The irruption does not appear to have reached Lombardy and Piedmont.

39. *Salvadori on Birds from Shoa and Harar.*

[Uccelli dello Scion e dell' Harar raccolti dal Dott. Vincenzo Ragazzi. Per Tommaso Salvadori. Ann. Mus. Civ. Gen. ser. 2, vi. p. 525.]

The collection here reported on was made by Dr. Ragazzi in Shoa and on the road from Ankober to Harar in 1886 and 1887. The 86 specimens which it contains are referable to 62 species, of which 18 were not represented in previous collections of Antinori and Ragazzi, and 11 are new to Shoa. Two species of *Francolin* are described as new to science under the names *Francolinus spilogaster* and *F. castaneicollis*. Another interesting species, of which two specimens are in the series, is the small Bustard, *Leptotis gindiana* (Oust.), which has also been described by Dr. Cabanis as *Otis fulvicrista*.

40. *Salvadori and Giglioli on the Birds of the Voyage of the "Vettor Pisani."*

[Uccelli raccolti durante il Viaggio della Corvetta "Vettor Pisani" negli anni 1886, 1887 e 1888, descritti da T. Salvadori ed E. H. Giglioli. Mem. R. Acad. Sc. Torino ser. 2, vol. xxxix. p. 389.]

This memoir gives a complete account of the specimens of birds collected by Count Camillo Caviglioli di Olivola and

other officers of the Italian corvette 'Vettor Pisani,' under the command of Prince Thomas, Duke of Genoa, during a voyage to Eastern Asia in 1879-81. The localities at which collections were made were:—(1) Durderi, on the Somali coast; (2) Maldivé Islands; (3) Pulo-Pinang; (4) Singapore; (5) Olga Bay, Vladivostock, and Possiet Bay, N.E. Asia; (6) Japan; (7) China; (8) Manila; (9) Corea; (10) Bangkok; and (11) Straits of Malacca. At these different places 312 specimens altogether were obtained, which are referred to 168 species. Amongst these *Lanius dorsalis* and *Amydrus blythi* of Somaliland, and *Carine pulchra* of Bangkok, may be regarded as of special interest. But the gems of the collection were undoubtedly two specimens of *Cygnus davidi*, which, along with the other specimens from Corea and Mantchuria, have been already described by the same authors in a communication to the Zoological Society of London*.

41. *Shufeldt on the Osteology of Sturnella.*

[On the Skeleton in the Genus *Sturnella*, with Osteological Notes upon other North-American *Icteridæ* and the *Corvidæ*. By R. W. Shufeldt. Journ. Anat. and Phys. xxii. p. 309.]

In this memoir Dr. Shufeldt discusses at some length the osteology of *Sturnella* and the various resemblances it presents to other *Icteridæ* and American *Corvidæ*. He concludes that *Sturnella* "undoubtedly belongs to the *Icteridæ*," and within that family "probably has its nearest ally in *Xanthocephalus*." He maintains that *Molothrus*, usually associated with the *Icteridæ*, "is a genus of Finches, and should be placed in the family *Fringillidæ*," and that *Dolichonyx*, no doubt, belongs there too. The memoir is illustrated by two well-executed plates with numerous figures.

42. *Shufeldt on the Osteology of Porzana carolina.*

[Osteology of *Porzana carolina* (the Carolina Rail). By R. W. Shufeldt. Journ. Comp. Med. and Surg., July 1888.]

Dr. Shufeldt describes, in his usual accurate and exhaustive

* See P. Z. S. 1887, p. 580.

manner, the osseous structure of the Carolina Rail, and gives excellently drawn illustrations of the various bones. It is much to be wished that the author's numerous papers on the osteology of American birds will be eventually reissued in a connected form.

43, 44. *Sousa on Additions to the Birds of Angola.*

[Aves de Angola da Exploração do Sr. José d'Anchieta por José Augusto de Sousa. *Jorn. Acad. R. d. Sci. de Lisboa*, Num. xlviii. p. 216.

Contribution pour la Faune Ornithologique d'Angola par José Augusto de Sousa. *Op. cit.* p. 233.]

M. de Sousa's articles are based upon a collection 64 specimens made by the well-known collector Anchieta in July, August, and September, 1887. Of the 49 species to which the specimens are referred, one, *Monticola angolensis*, is described as new. It was referred to *M. brevipes* by Barboza du Bocage in his 'Ornithologie d'Angola,' as only one immature specimen had then been received. M. d'Anchieta has sent home a large series since that period.

45. *Stejneger on the Birds of the Idzu Islands.*

[On a Collection of Birds made by Mr. M. Namiye in the Islands of Idzu, Japan. By Leonhard Stejneger. *Proc. U.S. Nat. Mus.* 1887, p. 482.]

The Idzu Islands, situated south of Yokohama, off the coast of Japan, were visited by Mr. Namiye in April and May 1887. Specimens were obtained belonging to 22 species, amongst which is a new Thrush named *Turdus celænops*, most nearly related to *T. chrysolaus*. The remainder are known Japanese species.

46. *Stejneger on Japanese Birds.*

[Review of Japanese Birds.—VII. The Creepers. By L. Stejneger. *Proc. U.S. Nat. Mus.* 1887, p. 606.]

Dr. Stejneger continues his useful papers on Japanese birds, and now takes up the *Certhiæ*, of which he recognizes two forms in Japan, supposed to be separated by "Blakis

ton's Line." These he terms *C. familiaris* and *C. familiaris scandulaca*. But the series of specimens in the U.S. Nat. Museum is "very scant," and additional examples are much wanted.

47. *Taczanowski on the Birds of Poland.*

[Liste des Oiseaux observés depuis cinquante ans dans le Royaume de Pologne. Par L. Taczanowski. Ornith., iv. p. 441.]

M. Taczanowski's article on the birds of the Kingdom of Poland is the result of fifty years' close attention to this subject, and supplies us with notes on 303 species known to belong to the avifauna of that country. Such Eastern species as *Aquila nœvia* and *A. clanga*, *Lusciola philomela*, *Erythrosterna parva*, *Lanius minor*, and *Carpodacus erythrurus*, which we hardly know in Western Europe, are found in Poland in more or less abundance. We are pleased to observe that *Otis tarda* and *Gallinago major* are still to be found breeding there in several localities.

48. *Turner on the Birds of Alaska.*

[Contributions to the Natural History of Alaska. Results of Investigations made chiefly in the Yukon District and the Aleutian Islands. By L. M. Turner. 4to. Washington: 1886.]

Mr. L. M. Turner's field-notes on the birds of Alaska are very full and will be read with great interest by students of the arctic avifauna. It is not, however, explained why, if, as it appears, they were prepared and transmitted to headquarters in 1882, and printed in 1886, it should have taken two more years to issue them to the public.

Mr. Turner's observations were made in connection with his work under the U.S. Signal Corps. From May 1874 to July 1877 he was at St. Michael's, whence he returned to Washington. In May 1878 he again took service with the Signal Corps, and was resident at Unalashka and at other stations in the Aleutian Islands until July 1881.

The notes on the birds are, except in few instances, the results of Mr. Turner's own observations. Those on the *Alcidæ* and *Laridæ* are very full and contain much novel

information. The following species are figured :— *Simorhynchus pygmæus*, *Brachyrhamphus kittlitzii*, *Lagopus rupestris atkhensis* ♂ et ♀, *Ulula cinerea lapponica*, *Surnia ulula*, *Loxia leucoptera* in first plumage, *Pyrrhula cassini* ♀, *Leucosticte griseinucha*, *Motacilla ocularis*, *Troglodytes alascensis*, *Anthus cervinus* in winter plumage, *Parus hudsonicus* and *P. cinctus obtectus*. A Yellow Wagtail (*Budytes flavus leucostriatus*) is a regular summer visitor to the Alaskan littoral, arriving about June 12th and departing about Sept. 21st and breeding. The Grey Wagtail (*Motacilla ocularis*) was only once obtained at Unalashka, in May.

To his special notes Mr. Turner appends a complete list of the birds of Alaska, as yet “authentically known and recognized.”

XII.—Letters, Extracts, Notices, &c.

WE have received the following letters addressed to the Editor of ‘The Ibis :’—

Northrepps, September 1888.

SIR,—M. Boucard, of Paris, has recently sent me five specimens of *Buteo swainsoni*, killed during the months of October and November in the interior of Venezuela, three of which, two melanistic, and one partially so, I have retained for the Norwich Museum, which previously possessed one wholly and two partly melanistic examples of this species.

All these specimens are dark brown, *but not blackish*, the tint of brown varying from “seal-brown” No. 1 to “sepia-brown” No. 2, in plate 3 of Ridgway’s ‘Nomenclature of Colour.’

This coloration probably agrees with the “*brun fuligineux*” which has been described by M. Oustalet as the prevailing colour of the type specimen of *Buteo unicolor* of D’Orbigny. M. Oustalet’s description of this type, quoted by Mr. Salvin in ‘The Ibis,’ 1886, p. 73, appears to me to agree more closely with the melanistic phase of *Buteo swainsoni* than it does with the two blackish-brown Buzzards collected by Mr.

Whitely in British Guiana, and entered in Mr. Salvin's list of Mr. Whitely's collection as being probably referable to *Buteo unicolor*.

M. Oustalet speaks of D'Orbigny's type as being "beaucoup moins noir" than one of the Guiana specimens sent to him for comparison; and I cannot but suspect that these two examples, which have been presented by Messrs. Salvin and Godman to the British Museum, are specifically distinct from *Buteo unicolor*, and that the latter is identical with the melanistic phase of *Buteo swainsoni*.

Yours &c.,

J. H. GURNEY.

Dunipace, Larbert, N.B.,
October 29, 1888.

SIR,—Allow me to correct a misprint in the last number of 'The Ibis.' At page 492, for Dr. John Mackney," read Dr. John Mac-Bury.

I may take this opportunity of recording the occurrence of an adult male Blue-throated Warbler (*Cyanecula suecica*) on the Monarch-Islands lighthouse. It was sent me by Mr. Joseph Agnew, and is now here in spirits. It may also interest naturalists to know that Rockall was landed upon last summer, and that, amongst other eggs, of which several dozens were taken, one egg of a Common Guillemot is recognized by Mr. T. E. Buckley, to whom it was forwarded.

Yours &c.,

J. A. HARVIE-BROWN.

Herring-fleet Hall,
near Lowestoft, Suffolk.

November 1, 1888.

SIR,—I have recently had an opportunity of examining the beautiful collection of Falcons' skins in the Norwich Museum with Mr. John Henry Gurney, and, after carefully looking over the fine series of specimens of *Falco babylonicus*, have no hesitation in deciding that all of the birds I shot in Sind belonged to that species, and not to *F. barbarus*, as

believed by Mr. Hume, who identified the specimens referred to, and entered them under that name in my paper on the birds of Sind contained in 'Stray Feathers' (vol. vii. p. 174). The remarks there recorded by me—viz.: "One of the most striking characters in the plumage of the adult bird is the rufous halo that surrounds the moustachial stripe,"—are, I think, sufficient to fix the species, as this peculiarity does not exist in the other allied species with which it is likely to be confounded, namely, *F. barbarus*, *F. punicus*, and *F. minor*. In *F. babylonicus*, male and female, adult and immature, the moustachial stripe is the same rufous chestnut as the top of the head, with a dark blackish or slaty-brown centre, and this distinguishes it at a glance from all of its allies above mentioned. I notice that this characteristic is also referred to in 'Stray Feathers,' viii. p. 330, lines 4 to 11, where an excellent description of that part of the bird will be found.

Mr. Gurney considers (Str. F. vol. x. pp. 481, 482) that all of the Indian specimens identified by Mr. Hume as *F. barbarus* are referable to *F. babylonicus*, and in this impression, so far as my experience goes, he is probably right.

It is as well to take this opportunity also of correcting another error in my paper on the avifauna of N. Guzerat and Mount Aboo, in which ('Stray Feathers,' vol. iii. p. 443, and vol. iv. p. 36) I unfortunately recorded the occurrence of *Falco peregrinator* at Mount Aboo, whereas the bird I obtained was, as I am now convinced, *F. babylonicus*.

Had 'Stray Feathers' been continued I should not have asked you the favour of publishing this letter in 'The Ibis.'

Yours &c.,

E. A. BUTLER, Lieut.-Col.

Carlisle, Nov. 9, 1888.

SIR,—I beg leave to state that, on the 18th of October last, three examples of the Pectoral Sandpiper (*Tringa maculata*) were observed in a grass-meadow near Penrith. Two of the birds were shot. One of them fell into a snipe-pool and was eaten by rats; the other was safely secured, and within

half an hour was placed in the hands of my friend Mr. Tandy, a young but zealous ornithologist. The third bird lingered in the neighbourhood until the 22nd, but escaped scathless. Mr. Tandy's bird proved on dissection to be exceedingly fat; its stomach contained the remains of vegetable substances. It is in immature plumage. I may add that Mr. Bidwell and other friends have examined the specimen, which is the first authenticated example of the species obtained in the *north-west* of England.

Yours &c.,

H. A. MACPHERSON.

November 10, 1888.

SIR,—It may possibly not be altogether without interest to British ornithologists to know that I was fortunate enough to discover the nest of the Snow Bunting (*Plectrophanes nivalis*) during the past summer in the north of Scotland. The nest, which contained five richly coloured eggs, was composed of bents and moss, lined with a few Ptarmigan-feathers and one or two small pieces of sheep's wool. These are, I believe, the only eggs of this species that have been taken on the mainland of Great Britain up to the present time.

Yours &c.,

J. YOUNG.

22 Corporation Street,

Belfast, Dec. 5, 1888.

SIR,—Pallas's Sand Grouse continues to appear in this neighbourhood. Three were brought in to a local bird-stuffer about a fortnight ago; and I had in my hand to-day a very beautiful specimen (in the flesh) that had come in yesterday. All four examples were from the co. Down. I lately saw in co. Tyrone a Long-tailed Duck (*Harelda glacialis*), which had been shot on a small lake in that county, about thirty miles from the sea. Is not this unusual?

Yours &c.,

R. LLOYD PATTERSON.

Additions to the National Bird Collection in 1877-78.—The Parliamentary Report on the British Museum, issued in August last, contains the following paragraphs on acquisitions by the National Collection :—

“The ‘Tweeddale’ Collection of birds and ornithological works; presented by Capt. R. G. Wardlaw-Ramsay.

“This collection consists of about 35,000 specimens of birdskins, and was formed principally by the uncle of the donor, the late Marquis of Tweeddale, who had paid particular attention to certain local faunas, such as the birds of the Philippine Islands, Andaman Islands, Malayan Peninsula, &c., sparing no expense and labour in rendering these portions of his collection complete. As the British Museum was particularly deficient in those faunas in which the ‘Tweeddale’ Collection excels, this acquisition is a very important event in the progress of the ornithological series in the British Museum. It is calculated that after the disposal of the duplicates, about 27,000 specimens will be left for incorporation in the Museum series.

“But besides this valuable collection, Captain Wardlaw-Ramsay has deposited in the British Museum the ornithological works collected by his uncle and himself, with the expressed desire that this library should be placed in contiguity with the study-series of birds, so as to facilitate the work of students. This library consists of about 2300 volumes, and comprises a number of the most costly ornithological publications, such as those by Gould, Audubon, Temminck, &c.

“The additions to the collection of birds during the past year amounts to 6746, besides the ‘Tweeddale’ Collection already mentioned: the following are most worthy of note :—

“Parent birds, nests and eggs, or young of the Jackdaw, Capercaillie, and Landrail; presented by W. R. O. Grant, Esq.

“A pair of Sparrows, with nest and young; presented by Dr. Günther.

“A female Gadwall and a pair of Nuthatches, with nests

and young ; presented by the Right. Hon. Lord Walsingham, F.R.S.

“ A female Capercaillie, with nest and eggs ; presented by Colonel Irby.

“ A pair of Ptarmigan, with nest and eggs ; presented by His Grace the Duke of Athole.

“ A pair of Kentish Plovers, with young and eggs ; presented by Colonel Irby and Captain Vernon.

“ A pair of Laughing Gulls, with nest and eggs ; presented by the late Lord Lovat.

“ Parent birds, young and eggs of the Lesser Tern ; presented by Captain Verner.

“ Thirty-one birds from Flamborough ; presented by the Right Hon. the Earl of Londesborough.

“ Sixty specimens from the Caucasus and Altai Mountains ; received in exchange from the St. Petersburg Museum.

“ Eighty-two specimens from South Manchuria ; presented by H. E. M. James, Esq.

“ Twenty-five specimens from China, including the types of *Pomatorhinus styani* and *Trochalopteron cinereiceps* ; presented by F. W. Styan, Esq.

“ Nineteen specimens from the Hills of Perak ; presented by L. Wray, Esq.

“ Sixty birds from North America ; presented by H. K. Coale, Esq.

“ Eighty-two specimens from California, including the type of *Colinus ridgwayi* ; presented by G. Frean Morcom, Esq.

“ Thirty-five birds from the Cameroons, including the types of four new species (*Psalidoprocne fuliginosa*, *Poliopicus johnstoni*, *Laniarius atroflavus*, and *Ploceus melanogaster*) ; collected by H. H. Johnston, Esq., and presented by the British Association.

“ Seventeen specimens from the Upper Congo, including nine species new to the collection ; purchased.

“ Six specimens from Masai Land, five of them being new to the collection ; purchased.

“Twenty-five specimens from the Solomon Islands, including the types of *Ninox solomonis*, *Rallus intactus*, and *Mino kreffti*; presented by P. L. Sclater, Esq.

“Thirty-five specimens from the Solomon Islands, including a new species (*Macrocorax woodfordi*); purchased.

“Six specimens from New Zealand, including the types of *Donacicola hunsteini*, *Myzomela ramsayi*, and *Carpophaga subflavescens*; purchased.

“Seventy-five specimens from the Horseshoe Range of the Astrolabe Mountains, New Guinea; collected by Mr. Romilly, and presented by the Queensland Commissioners for the Indian and Colonial Exhibition.

“One hundred and ninety-two specimens from N.W. Australia; collected by the late T. H. Bowyer Bower, Esq., and presented by Captain Bowyer Bower.

“One hundred and thirty-five specimens from various localities; presented by R. B. Sharpe, Esq.

“Sixteen specimens from various localities, including seven species new to the collection; presented by Henry Seebohm, Esq.

“Sixteen specimens from various localities; presented by Colonel Irby.”

Loche's Collection of Algerian Birds.—When recently at Algiers the Editor took the opportunity of examining the collection of Algerian birds formed by the late Capt. Loche, amongst which are the types of the new species described in his well-known catalogue of the birds of Algeria*. The collection now forms part of the “Exposition Permanente des produits de l'Algérie,” which is at present arranged in the vaults under the Rue de la République. It consists of about 400 mounted specimens labelled in Loche's own handwriting and in fairly good preservation. Nothing appears to have been added of late years. I was informed by the obliging Custos that it was proposed by the Municipality of Algiers to remove the whole collection very shortly and to place it in store

* Catalogue des Mammifères et des Oiseaux observés en Algérie, par le Capitaine Loche. 8vo. Paris: 1858.

until some other place could be found for its reception. It is to be hoped that the Municipality are fully aware of the value of this collection, and that they will see that proper care is taken of it. Such an important and flourishing city might well afford a better building for the display of its Collection of Natural History.

Protection of the Sea-birds on the Farne Islands.—Mr. Hugh Barclay sends us a copy of his report to the subscribers to the fund for the preservation of the sea-birds on the Farne Islands during the past year, from which we extract the following passages, showing the amount of success that has attended this highly laudable enterprise :—

“Notwithstanding a certain amount of opposition from fishermen residing near the islands, I think the birds were very fairly protected during the breeding-season. I visited the islands on three occasions, and have no reason to be dissatisfied with what I saw. My last visit was on the 21st of July, and I was glad to see large numbers of young birds of all species which usually resort to the Farnes during the nesting-season, thus proving that the means adopted for preserving the eggs had been effectual. The season was a most disastrous one, and large quantities of nestlings were destroyed by the rains and cold weather in the early part of July. This was very apparent on the Inner Farnes, where the number of dead nestlings fully confirmed the reports I occasionally received from the watchers. My limited acquaintance with the islands previous to this year prevents me from giving any comparative statement as to increase or otherwise in any particular species of bird, but it should be borne in mind that during the breeding-season of 1887 hardly a single egg was left on the islands before the 15th of June, when steps were taken to put a stop to further mischief. The following information may be interesting. The watcher on the Inner Farnes reported on the 15th July, ‘I am rather doubtful I will not be able to answer your questions with anything like accuracy, but taking my nearest calculation I think there will be about 150 Sandwich Terns hatched

off, and as for Arctic and Common Terns, it is impossible for me to give you any idea, they are so numerous now. Of Eider Ducks we have about 65 hatched off. I have got 25 Sandwich Terns sitting yet, and 10 or 12 Eider Ducks not hatched off yet; and also a great many Arctic and Common Terns.' The watcher on the Outer Farnes, on the same date, reported:—'The Ducks, on the whole, I think, are a very fair average, as I have seen a good many of their young ones.' Mr. Paynter, who for many years has taken very great interest in the birds during the breeding-season, writes:—'I should say only about 60 Eider Ducks hatched off their broods instead of a hundred. The Gulls, both Black-backed (the Lesser) and Herring Gulls, are quite as numerous as ever; also the Terns, Oyster Catchers, and Dotterels about the same. Puffins and Guillemots rather more numerous, especially the Bridled Guillemots If the weather had been warmer and not so wet, I think there would have been far more young birds than usual. Cormorants were much the same, about 50 nests. As far as I could make out, there were only two pairs of Roseate Terns.' "

Hydrochelidon leucoptera in *New Zealand and Australia*.—In his 'Tabular List of Australian Birds,' Mr. Ramsay rather questions the occurrence of this Tern in New Zealand and Australia. As regards its appearance in New Zealand, nothing, as Mr. Howard Saunders has pointed out to us, can be more explicit than the statement by Sir W. L. Buller (B. New Zealand, 1st ed. p. 287) respecting an adult specimen now in the Colonial Museum, and shot, along with another, in the Province of Nelson, on Dec. 12th, 1868; and the same authority says that this Tern has been discovered in Australia since the publication of Gould's 'Handbook'*. Mr. Saunders has no evidence of his own to adduce, and there are no specimens of this species in his collection from further south than Celebes.

* Hutton (B. N. Z. p. 78), 1871, says, "I notice that it has also *lately* been obtained in Northern Australia."

The Birds of British India.—We are pleased to be able to announce that Mr. Eugene William Oates, Member of this Union, and the well-known author of ‘The Birds of British Burmah,’ has undertaken the preparation of the volumes on Birds belonging to the series on the Fauna of British India, published under the authority of the Secretary of State for India in Council, and edited by Mr. W. T. Blanford, F.R.S. Mr. Oates has returned to this country from India for the express purpose of performing this work, and is busily engaged thereupon at the British Museum of Natural History, where he has the advantage of the Hume collection to facilitate his labours.

The Northern Falcons —Mr. J. H. Gurney calls our attention to the following passages in Mr. Nelson’s lately issued ‘Birds of Alaska’ (of which we shall give a review in our next number) respecting the Northern Falcons of the genus *Hierofalco* :—

“Throughout all Alaska, from the Aleutian Islands north, both along the coast and through the interior, the present Falcon (i. e. *Falco rusticolus gyrfalco*) is the commonest resident bird of prey.

“The young from Alaska form a pretty uniform series, with but a comparatively small amount of variation for this extremely polymorphic species. The specimen obtained on the Seal Islands by Elliott is larger and paler than the average Alaska birds, and thus approaches nearer the young of the form known as *islandicus*. The adults secured on the shores of North Sound vary in the amount of spotting on the abdominal surface, and in the size and shape of those spots. On the back they also vary from a condition in which the entire surface is washed heavily with ashy blue and the light cross-barring of the feathers is nearly obsolete, to one in which the cross-bars are well marked and of a dull yellowish white.

“In a series of skins of this species from various parts of its range there is found an interminable gradation from the whitest *islandicus* to the darkest *gyrfalco* and *rusticolus*. Spe-

cimens in the National Museum from Greenland show the widest extremes, which are bridged by connecting specimens, so that it is impossible to definitely separate them. The young retain their streaked plumage until the second fall, as is stated by Newton in the 'Proceedings of the Philadelphia Academy of Sciences' (1871, pp. 96, 97). This author's separation of *gyrfalco* from *islandicus* on the assumption that the head is lighter than the back in one and uniform with the back in the other rests upon a purely individual character, as is shown by my Alaskan series."

The Penguin of the Rio de la Plata.—In his 'Naturalist's Voyage' (chapt. iii.) Darwin speaks of having seen numerous Penguins in the estuary of the Rio de la Plata, when approaching Monte Video in the 'Beagle' in July 1832. Mr. W. H. Hudson is also well aware of the existence of Penguins on the coasts of the Argentine Republic, and has once seen a dead specimen on the shore near the Rio Negro. I believe the species to be probably the Jackass Penguin (*Spheniscus magellanicus*), but I am very anxious to identify it correctly, and should be exceedingly obliged by any information on the subject. Are there any examples of Penguins from this locality in public museums or private collections?

P. L. SCLATER.

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XIII.—*On the Birds of Southern Afghanistan and Kelát*
By Lieut.-Col. Sir O. B. ST. JOHN, R.E., K.C.S.I.

WHEN I was ordered to join the army proceeding to Southern Afghanistan in October 1878, my friend Mr. A. O. Hume placed an experienced bird-skinner at my disposal, with whose assistance I made as good a collection of the birds about Quetta and Kandahar as my somewhat onerous duties permitted. In the autumn of 1879, the evacuation of Kandahar appearing imminent, I sent the skinner and the collection to Mr. Hume at Simla. He returned me a rough list of them, but it did not find its way into print. A year or two previously, Dr. Duke, Residency Surgeon at Quetta, had sent Mr. Hume a few skins obtained in Northern Baluchistan, and Mr. Hume himself had made a large collection on the coast of the same country. With these materials Mr. Hume had designed to publish in 'Stray Feathers' as complete a catalogue as possible of the birds of Baluchistan; but that useful periodical had lived its life before he had time to carry out his purpose.

Events, as will be remembered, prevented the evacuation of Kandahar in 1879; I remained with the army of occupation, and continued to collect and take notes, having taught

an Afghan servant to skin tolerably well. Most of my specimens I transmitted to Mr. Hume from time to time, and they are no doubt in his collection; but several interesting skins, all my mammals and reptiles, and all my notes were lost with our baggage after the defeat at Maiwand in July 1880. A few months later, Colonel Swinhoe arrived in Kandahar and commenced collecting vigorously. I gave him what assistance I could in the way of information, and he later on obtained a list of Dr. Duke's birds. The result was a paper on the "Birds of Southern Afghanistan" published in 'The Ibis' for 1882. The title is somewhat misleading, as his list of 199 species includes all the birds he shot on the road from the plains of Sind to Quetta, of which the following do not extend to anything that can be fairly called Southern Afghanistan, viz.: *Carine brama*, *Coracias indicus*, *Chatarrhæa caudata*, *Pterocles senegallus*, and *Ortygornis pondicerianus*. Of the remaining 194 species, twelve are given on my authority, and twelve on that of Dr. Duke.

Mr. Barnes, of the Bombay Army, was stationed at Chaman, at the foot of the Khwaja Amran hills in 1880, and published some interesting notes on the nesting of several species in vol. ix. of 'Stray Feathers,' and later on a list of birds observed and procured. Mr. Murray, of Kurrachee, paid a visit to Chaman about the same time and sent several specimens to Mr. Hume for identification. Till the army evacuated Kandahar in April 1881, I had no time for collecting; but being detained at Quetta till November I picked up a few specimens, and on leaving for England sent most of them to Mr. Hume, who, however, did not find time to identify them before his collection was sent to the British Museum. Some specimens obtained by my collector after I left were kindly identified for me by Mr. Blanford.

As I have already mentioned, it was Mr. Hume's intention to publish in 'Stray Feathers' a list of the birds of the geographical province of Baluchistan, that is, from Quetta southwards to the sea, and from Sind on the east to Persia proper on the west. To this end he compiled a catalogue from the material enumerated above (omitting of course

Col. Swinhoe's list and my late collection), from Mr. Blanford's 'Eastern Persia,' and from his own observations on the coast. This catalogue, with all other notes and letters on the subject, he has kindly placed at my disposal, with the recommendation that I should take up the work where he had left it off and compile as complete a list as possible of the birds of Baluchistan. This, however, I have not ventured to do. The ground covered could hardly be called a single province politically or geographically. It should be remembered that Baluchistan is a vague expression of political geography, unknown to the people themselves, and describes no definite physical region. The western half of Baluchistan has long been included in Persia, and nothing has lately been added to the list of its fauna made by Mr. Blanford in 1871-2. From Quetta on the south to Kandahar on the north the avifauna has now been pretty well worked out; but the majority of the specimens were obtained in the neighbourhood of Kandahar, which is certainly not in Baluchistan, while Quetta itself is an Afghan district, though ruled by the Khan of Kelát. Finally, the valleys of Baluchistan proper between the west and the highlands of Kelát are as yet unexplored as regards their fauna. Under these circumstances I have thought it better to confine my list to the parts I have myself collected in, namely, Southern Afghanistan and the highlands of Kelát.

This forms a distinct and well-defined province known from time immemorial in Western India and by its own inhabitants as *Khurasán* (land of the sun), but must not be confounded with the Persian province of the same name. On the east and south its limits are roughly those of the date-palm, say from 3500 to 4000 feet in elevation, and are marked on the east by our stations of Harnai and Mach on the Quetta railway, and on the south by the villages of Kozdar and Nal in about latitude $27^{\circ}40'$. On the north and west the limits of *Khurasán* are hardly so well defined, but the country over which our collections have been made extends to Kelát-i-Ghilzai on the N.E. and to the Helmund at Girishk on the west. Throughout this district, which

comprises the Afghan province of Kandahar, the British provinces of Pishin and Thal Chotiali, with those of Quetta and Kelát proper, the flora is distinctly that of the temperate zone, the Indian monsoon is little or not at all felt, and the main rainfall is in winter. In the lower country to the east and south the flora is subtropical and the climate that of Sind. In configuration this Baluch or Afghan Khurasán is a plateau, of which the ridge, averaging 6000 feet above the sea, runs about north and south along the 67th meridian. It is everywhere traversed by ranges of rocky hills rising in some instances to 11,000 feet above the sea. These higher hills are well clad with dwarf trees and shrubs, but the lower hills and the plains are very bare. As may be supposed, the birds are not very numerous, and my list numbers 235 species only.

Of these, 205 are included in the birds of Persia enumerated by Mr. Blanford, or are well known to inhabit Western Asia. The exceptions are the following:—

<i>Pseudogyps bengalensis.</i>	<i>Hypocolius ampelinus.</i>
<i>Falco jugger.</i>	<i>Buchanga albirictus.</i>
<i>Astur brevipes.</i>	<i>Muscipeta paradisi.</i>
<i>Milvus govinda.</i>	<i>Myiophoneus temminckii.</i>
<i>Elanus cæruleus.</i>	<i>Merula unicolor.</i>
<i>Scops pennatus.</i>	<i>Oriolus kundoo.</i>
—— <i>brucei.</i>	<i>Amadina malabarica.</i>
<i>Hirundo filifera.</i>	<i>Emberiza stewarti.</i>
<i>Caprimulgus unwini</i> *.	—— <i>schoeniclus.</i>
—— <i>mahrattensis.</i>	<i>Euspiza luteola.</i>
<i>Alcedo bengalensis.</i>	<i>Carduelis caniceps.</i>
<i>Picus sindiensis</i> (<i>rel hima-</i>	<i>Alauda gulgula.</i>
<i>layensis</i>).	<i>Ægialitis curonica.</i>
<i>Gecinus gorii.</i>	<i>Porphyrio poliocephalus.</i>
<i>Lanius erythronotus.</i>	<i>Ardea bubulcus.</i>
—— <i>phœnicuroides.</i>	

Of these the majority are stragglers from the neighbouring plains of India or winter emigrants from Central Asia to India. One (*Gecinus gorii*) is peculiar to the province, another (*Hypocolius ampelinus*) is a wanderer from Africa,

* [Mr. Blanford informs me that some grey specimens from S.E. Persia, referred by him ('Eastern Persia,' ii. p. 127) to *C. europæus*, were, he now believes, identical with *C. unwini*.—Ed.]

while *Muscipeta paradisi*, *Carduelis caniceps*, *Scops pennatus*, *Myiophoneus temmincki*, and *Merula unicolor* probably extend from the Himalayas along the Suleiman mountains into Southern Afghanistan.

I now give a general list of the species observed and some remarks upon each of them.

1. VULTUR MONACHUS, Linn.

Seen occasionally, generally in the winter, all over the country from the Bolan to Kandahar. An officer who lived with me in that city in 1880-1 had a young bird which became very tame. A cage made for it when we were evacuating the country proved too small, and it had to be left behind.

2. GYPS FULVUS (Gm.).

Colonel Swinhoe puts the Tawny Vulture of Afghanistan under *G. fulvescens*, but he does not seem to have procured a specimen. The following dimensions are taken from a bird just shot at Kelát-i-Ghilzai:—weight 16 lbs.; length 45 inches; expanse 8 feet; bill at gape 3 inches, depth $1\frac{3}{8}$ inch; legs plumbeous; six scutes on the outer toe. Can this have been *G. indicus*, with Jerdon's description of which it seems to agree? Probably not, as the latter has not, I believe, been recorded from Western India. It differs from the description of *G. fulvus* in Jerdon in the more slender bill, and in the greater number of scutes on the outer toe, points which Hume does not mention. However, as the type of *G. fulvus* was procured on the Iranian plateau, it does not seem safe to separate the Vulture of Afghanistan without more information than we possess at present.

The Tawny Vulture is common in the winter only, probably betaking itself in summer to the higher hills of Central Afghanistan, as I have noticed it occasionally about Ziarat (8000 feet) in the hot weather.

3. PSEUDOGYPS BENGALENSIS (Gm.).

During the first campaign in Afghanistan (1878-9) numbers of this bird accompanied the army on its march, finding ample sustenance in the camels that died at every halting-place and strewed the road from Sukkur to Kan-

dahar. In the spring of 1879 they disappeared, and I did not notice them again. The railway was laid across the desert from Sukkur to Sibi in the winter of 1879–80, and no movement of troops upwards took place till it was completed. This, by depriving the Vultures of the food they had found along the first half of the road the year before, may have deterred them from repeating their journey to Kandahar. Colonel Swinhoe mentions seeing another Vulture, which he did not identify, at Kandahar in March and April 1881, and this may have been *P. bengalensis*; but, as I have said, I did not notice the species after 1879. Under these circumstances it is perhaps hardly correct to include it among the birds of Southern Afghanistan.

4. NEOPHRON PERCNOPTERUS (Linn.).

At Mr. Hume's suggestion I shot several of these Vultures at Kandahar to ascertain whether *N. ginginianus* found its way above the passes, but all were *N. percnopterus*.

The Egyptian Vulture is common all over our province at certain seasons. A few pairs remained in the neighbourhood of Kandahar throughout the summer, but the majority of those that swarmed about the camp in late winter and early spring disappeared in April and did not reappear till July or August. At Kelát-i-Ghilzai in October there were none, and by the end of the same month they had all left Kandahar, not returning till the end of February or the beginning of March.

5. GYPÆTUS BARBATUS (Linn.).

Lammergeyers are found everywhere throughout the province and by no means require lofty mountains. A pair or two bred in the isolated rocky hills which rise fifteen hundred feet or so above the Kandahar plain. A nestling was brought to me in April 1879 and I kept it for four months, when I gave it to an officer returning to England, who promised to take it to the Zoological Society's Gardens; unfortunately it died on the road. It was a sulky stupid bird, and when not asleep kept up a continual moaning cry. It had a peculiar tippet of light grey feathers, centred dark, which I

do not remember noticing in young birds in Abyssinia, the only place where I have seen them in this early stage. In the Bolan pass Lammergeyers are particularly numerous. The wing of one I found lying dead measured $30\frac{1}{2}$ inches.

6. *FALCO PEREGRINUS*, Tunst.

Rare. I have only procured one specimen, a male, nearly pure white below. It was shot by my collector in a rocky pass near Quetta where I had seen it some days before, hunting chicken Partridges.

7. *FALCO JUGGER*, Gray.

Not very uncommon. Dr. Duke obtained it at Nal, and I have twice shot it in the Residency Garden at Quetta.

8. *FALCO BABYLONICUS* (sive *barbarus*?).

One or other of these species is the commonest Falcon of our province. Dr. Duke sent a specimen, shot near Kelât, unsexed, to Mr. Hume, which the latter noted as *F. babylonicus*. Of three females which I obtained in Kandahar, two he considered to be *F. barbarus* and one *F. babylonicus*. Last year I procured two males in the Residency Garden at Quetta, which, though rather large for *F. barbarus*, were smaller than any *F. babylonicus* of which I could find record. In April last I showed them to Mr. Hume, who told me that he now doubted whether true *F. barbarus* had ever been found in India at all, and that Mr. Gurney agreed with him that *F. babylonicus* was only the eastern form of the smaller *F. barbarus* of Europe and North Africa. The Kandahar specimens are in the Hume collection, and I recently sent one from Quetta to the British Museum*.

9. *FALCO ÆSALON*, Tunst.

Common. One of the first birds I shot in Pishin in 1878. Both Col. Swinhoe and I obtained specimens in Kandahar.

10. *TINNUNCULUS ALAUDARIUS* (Gm.).

The Kestrel is naturally common, but most if not all leave both Kandahar and Quetta in the hot weather. Mr. Barnes found it breeding in the Khwaja Amran range. I believe that I have also seen the Lesser Kestrel, *Erythropus naumanni*,

* [See Col. Butler's letter on this subject, above, p. 135.—ED.]

which is very common in Southern Persia and in Kashmir, but I have never shot it.

11. *MICRONISUS BADIUS* (Gm.).

Procured by Dr. Duke at Kozdar and in Kelát, and by Colonel Swinhoe at Kandahar. I have frequently seen it at Quetta in spring and autumn.

12. *ACCIPITER NISUS* (Linn.).

Common all over the province in spring and autumn.

13. *ACCIPITER BREVIPES*, Severtzov.

Two out of seven Sparrow-Hawks obtained by a collector whom I left at Quetta were identified by Mr. Blanford as belonging to this Central Asian species. Of the others two were *A. nisus*, and the remaining three *Micronisus badius*.

Mr. Barnes (Str. F. ix. p. 451) mentions that *Accipiter virgatus* was obtained by Mr. Murray at Chaman, but he does not mention having himself seen it. *A. virgatus* is not recorded by Mr. Murray from Sind, and is, I believe, essentially a forest bird. Neither Col. Swinhoe nor myself obtained it, nor has it been found in Persia. Under these circumstances I venture to doubt its occurrence at Chaman.

14. *AQUILA IMPERIALIS* (Bechst.).

Large Eagles are not uncommon throughout the province. Two specimens obtained by Col. Swinhoe at Kandahar were identified in England as *A. imperialis*. Mr. Hume believes that he saw *A. chrysaetus* on the Mekran coast, and I am inclined to think that it also occurs about Kandahar.

15. *AQUILA CLANGA*, Pallas.

Mr. Hume identified a Spotted Eagle which I obtained in Kandahar as *A. clanga*.

16. *AQUILA PENNATA* (Gm.).

Mr. Hume obtained a specimen from Nal in 1877, and I shot one at Quetta last year. It is not uncommon about the latter place, but I did not observe it at Kandahar.

17. *CIRCAETUS GALLICUS* (Gm.).

I have never been able to procure a specimen, but an

Eagle which I put down to this species is not uncommon in the province. I have frequently noticed its habit, mentioned by Jerdon, of hovering like a Kestrel.

18. *BUTEO FEROX* (S. G. Gmelin).

As in Persia, the commonest bird of prey in the country, except during summer, when it is not seen. It probably breeds in the high mountains of Central and Northern Afghanistan.

19. *BUTASTUR TEESA* (Frankl.).

Neither Colonel Swinhoe nor I obtained the White-eyed Buzzard at Kandahar, but I got a single specimen in the summer of 1887 in Quetta, and found it breeding at Baghwána (100 miles south of Kelát and 4500 feet above the sea) in 1886.

20. *CIRCUS MACRURUS*, S. G. Gm.

Very common in spring and autumn, rare in winter, and not seen at all in summer. *Circus cyaneus* ought to be found, but it has not been identified. A specimen shot in the Khojak in 1881 I see marked *C. cyaneus* in my note-book, but this with many other specimens obtained that year is in Mr. Hume's collection and still unidentified.

21. *CIRCUS CINERACEUS* (Mont.).

Mr. Blanford identified a specimen from Quetta as Montagu's Harrier.

22. *CIRCUS ÆRUGINOSUS* (Linn.).

The Marsh Harrier is common in winter in suitable localities.

23. *MILVUS GOVINDA*, Sykes.

On our march to Kandahar numbers of Kites accompanied the army, mostly of this species. They left early, about the end of January, while the next species (*M. migrans*) remained till April, when they again disappeared till October, shortly after which *M. govinda* again arrived.

24. *MILVUS MIGRANS*, Bodd.

The Common Kite of the country. Mr. Barnes found it breeding in the Khojak in March and April.

25. *ELANUS CÆRULEUS* (Desf.).

I shot a male at Baghwána in August 1886. Length of wing $10\frac{1}{4}$ inches.

26. *ASIO ACCIPITRINUS* (Pallas).

I shot a Short-eared Owl at Gatai on our march back from Kandahar in April 1881. The specimen is in the Hume Collection. I had previously seen three in a garden near Kandahar. It is doubtless a bird of passage only in our province.

27. *ASIO OTUS* (Linn.).

I shot a Long-eared Owl amongst the ruins of Old Kandahar, where Hutton notices that he found both it and the last-named species.

28. *BUBO IGNAVUS* (Forst.) ?

Which of the larger species of Eagle-Owls is found in our province I do not pretend to say. Three specimens have been obtained, one by Dr. Duke at Mastung in 1877, one by myself in Kandahar, and a third in Quetta. The first two are in the Hume Collection, the third I have recently sent to the British Museum.

29. *SCOPS PENNATUS* (Hodgson).

Col. Swinhoe, probably on Dr. Scully's authority, ascribes a Scops Owl which he procured in Kandahar to this species.

30. *SCOPS BRUCEI*, Hume.

Two specimens sent from Chaman to Mr. Hume, probably by Mr. Murray, are referred by him to this species. Mr. Barnes notes that they are common and breed there.

31. *SCOPS GIU* (Scop.).

Mr. Hume identified the only Scops Owl I sent him from Kandahar as *S. giu*. Later on he procured two more specimens from the Khwaja Amran hills, sent to him, I believe, by Mr. Murray. Mr. Barnes notes (S. F. vii. p. 452) that Mr. Murray obtained *Scops bakkamæna* (Penn.), but this seems hardly likely. Moreover, Mr. Murray sent two specimens of a *Scops*, and what he calls a *Glaucidium*, to Mr.

Hume for identification. These seem to have turned out to be the two *S. brucii* mentioned above and *S. giu*.

The Scops Owls are very common in favourable localities, keeping in summer to the juniper-forests of the mountains and dispersing over the country in winter. It is curious that the only two specimens obtained in Kandahar were shot one on the 11th April, 1879, and the second by Col. Swinhoe on the 12th April, 1881. They were probably on their way to the highlands of Central Afghanistan.

32. *HIRUNDO RUSTICA*, Linn.

First seen in Kandahar in 1879 on the 7th February. Disappeared entirely before the end of September, very few, indeed, remaining after the middle of August. Col. Swinhoe notes that he saw the first Swallow in 1881 on the 29th January. In Quetta they are later in appearing.

33. *HIRUNDO FILIFERA*, Steph.

Somewhat to my surprise I found this bird on several occasions in the Arghandab valley, and on one occasion near Kelát-i-Ghilzai, 5000 feet above the sea. It was not common, and I observed it nowhere else. Mr. Murray notices its occurrence at Quetta, but I have not seen it there.

34. *HIRUNDO DAURICA* (?).

In 1881 I saw a small flock of Red-rumped Swallows near Kach, but failed to procure a specimen. Which of the many forms of *H. daurica* they belonged to I cannot therefore say.

35. *COTILE RIPARIA* (Linn.).

Rare. Procured by Col. Swinhoe in Kandahar.

36. *COTILE RUPESTRIS* (Scop.).

Rock Martins are not common in the province. A specimen sent to Mr. Hume in 1881-82 remains unidentified in his collection. A bird which I shot last autumn at the head of the Pishin valley, about 6000 feet above the sea, appeared to me to be *Cotile rupestris*.

37. *CYPSELUS MELBA* (Linn.).

I obtained a single specimen of this Swift in Kandahar, the only one I saw there. I was waiting for a favourable

shot at a Common Snipe, of which swarms were flying overhead, when the big Swift passed and a lucky shot brought him down. I have since noticed Alpine Swifts in the cliffs of the mountains east of Quetta.

38. *CYPSELUS APUS* (Linn.).

The Common Swift, which swarms all over our province, was ascribed by Mr. Hume to *C. pekinensis* (Swinhoe) ; but I could see no difference between it and the *C. apus* of Persia, so I brought a few specimens to England with me in 1882. They were carefully compared with European and other Asiatic examples by Mr. Seebohm, who concluded that they were not separable from European specimens, and that the so-called *C. pekinensis* was not a good species.

39. *CYPSELUS AFFINIS*, J. E. Gr.

Found in small colonies here and there, but nowhere common. A few pairs breed in the Beba-Wali rocks on the Arghandab near Kandahar ; and in the summer at Quetta I have noticed this Swift drinking at a pond in the Residency grounds.

40. *CAPRIMULGUS UNWINI*, Hume.

Common everywhere in suitable localities. I took three specimens to England in 1882. They were compared with *C. europæus* by Mr. Seebohm, who writes of them, "a shade paler than our bird, and may possibly be subspecifically separable from it."

41. *CAPRIMULGUS MAHRATTENSIS*, Sykes (?).

On the Helmund river near Girishk in 1880, a few days before the unlucky battle of Maiwand, I shot a Goatsucker which certainly did not belong to the last species. The lower parts were pale fulvous, wholly unspotted on the abdomen and vent. The specimen was lost with my baggage after our defeat. I think it was larger, not smaller than the Common Nightjar, but I may have been mistaken. If so, it was probably referable to *C. mahrattensis*, which Horsfield says is found in Afghanistan.

42. *MEROPS VIRIDIS*, Linn.

Found up to 4000 feet in the valleys of Baluchistan, but not in Afghanistan.

43. *MEROPS PERSICUS*, Pall.

Common all over the province in summer.

44. *MEROPS APIASTER*, Linn.

Arrives in Quetta and Kandahar before the last. Swinhoe noticed them at the latter place on the 14th April.

45. *CORACIAS GARRULA*, Linn.

A common summer visitant, arriving in April. Colonel Swinhoe says that *C. indica* has been observed at Quetta, but does not say by whom, and I doubt its occurrence above 1500 or 2000 feet.

46. *HALCYON SMYRNENSIS* (Linn.).

A rare straggler into our province up the valleys of Baluchistan, but commoner lower down. In Persia I have seen it as high as 6500 feet, but here not above 4000.

47. *ALCEDO BENGALENSIS*, Gm.

Mr. Hume ascribes a Kingfisher shot by Dr. Duke at Quetta in November to this species, but neither Col. Swinhoe nor I obtained it. Mr. Murray says it is found in S. Afghanistan, but I doubt it.

48. *ALCEDO ISPIDA*, Linn.

Common in favourable localities all over the province.

49. *CERYLE RUDIS* (Linn.).

Dr. Duke shot a specimen at Quetta in November, and I have noticed it occasionally both at Quetta and Kandahar, but it is very rare.

50. *PICUS SCINDIANUS* (Gould).

A pied Woodpecker is not uncommon in the Khwaja Amran and in the sparsely wooded hills to the north and east of Quetta. A specimen was obtained in the former locality by Col. Swinhoe, and ascribed by him to this species. Mr. Barnes and Mr. Murray also state that those they "found breeding about the Khojak were *P. scindianus*, which is

certainly found in the tamarisk-jungles about Nal (4000 feet) and in other suitable localities up to that altitude. But it is not found in Quetta, Kelát, or Pishin, and I ascribed the specimens I obtained in the Khwaja Amran to *P. himalayanus*. Unfortunately they were not compared and identified by Mr. Hume. In page 37 of 'Contributions to Indian Ornithology,' Mr. Hume remarks that the Kashmir specimens of *P. himalayanus* look at first sight something like a connecting-link between that species and *P. scindianus*. It appears to be so in size, for *P. himalayanus* from the Eastern Himalayas is said by Jerdon to be 10 inches in length; *P. scindianus* is from 8·5 to 8·75, while Hume gives 9·0 as the length of a fine female *P. humei* from Kashmir. Comparing my specimens from the Khwaja Amran with the plate of *P. scindianus* in 'Contributions to Indian Ornithology,' I had little doubt as to their belonging to the Northern species, and I am still inclined to think I was correct.

Picus himalayanus, a mountain form, was found by Lieut. Wardlaw-Ramsay in the Kurrum valley, and it seems more likely that it should extend southwards along the mountains for a couple of hundred miles than that *P. scindianus*, which is not elsewhere a mountain form, should leap the same distance northwards and take to dwelling in steep hills sparsely clad with small trees and shrubs, instead of the dense tamarisk-jungle in which it delights elsewhere. In the Hume Collection there is a specimen of our pied Woodpecker from Nal, and three procured by me from the Khwaja Amran. Perhaps some ornithologist interested in the *Picidæ* may think it worth while to hunt them up and settle the point.

51. *GEVINUS GORII* (Hargitt).

The Green Woodpecker of South Afghanistan has been recently separated from *G. squamatus* by Mr. Hargitt (Ibis, 1888, p. 159). The type specimen was shot on the lower Helmund by Captain Gore in 1884, but a female had previously been obtained by Dr. Duke at Quetta in 1877. I have seen it on the Khwaja Amran hills, and, I believe, in the juniper-forests of Ziarat. It is rare.

52. *LYNX TORQUILLA*, Linn.

Not very uncommon. I got two specimens at Kandahar, and Col. Swinhoe one there and one at Quetta, all in the spring.

53. *LYNX INDICA*.

This species is said by Jerdon to be found in Afghanistan and Tibet, but the former locality is probably incorrect.

54. *CUCULUS CANORUS*, Linn.

First noticed by Lieut. Barnes at Chaman on the 1st April. It breeds on the Khwaja Amran and in the Ziarat hills, laying its eggs, I suspect, in Magpies' nests.

55. *ARACHNECTHRA ASIATICA* (Lath.).

Just comes into our province on the extreme south, being common in the southern part of the Kelát province up to 4000 feet.

56. *TICHODROMA MURARIA* (Linn.).

Very common all over the province in suitable localities in winter, but goes further north to breed. It is a tame and familiar bird, and may frequently be seen catching insects on the ramparts of Kandahar. The sun-dried brick walls of all buildings in South Afghanistan seem to have a great attraction for it, and I have more than once seen it flitting about my half-open window, like a great butterfly.

57. *SITTA SYRIACA*, Ehr.

Common everywhere in suitable localities. I found its nest in a hole in the wall of a small mausoleum built among rocks on the river Arghandab, in April.

58. *UPUPA EOPS*, Linn.

Common everywhere.

59. *LANIUS LAHTORA*, Sykes.

Not very common, except in the lower country south of Kelát, where it was found plentiful by Dr. Duke. I did not notice it at Kandahar, but obtained a specimen near Kelát-i-Ghilzai.

60. *LANIUS MINOR*, Gm.

I did not see this bird, but Colonel Swinhoe obtained a specimen at Kandahar. I procured it in Persia, but it is rare there also.

61. *LANIUS ERYTHRONOTUS*, Vig.

The commonest Shrike in the country, being found in every garden. It is very bold and savage. A pair that bred close to my house in the Kandahar cantonment killed, one after the other, six Goldfinches I had in a cage, the two alighting on the cage together and striking at the frightened birds with beak and claw.

62. *LANIUS VITTATUS*, Valenc.

Rather rare about Kandahar and Quetta, commoner south of Kelát.

63. *LANIUS ISABELLINUS*, Hempr. et Ehr.

Common all over the province.

64. *LANIUS PHÆNICUROIDES*, Severtzoff.

Colonel Swinhoe obtained two specimens at Kandahar.

65. *HYPOCOLIUS AMPELINUS*, Bp.

In 'Stray Feathers' (v. p. 349) Mr. Hume has described a bird of this species obtained by Dr. Duke at Nal in April 1877. It has not since been procured in our province.

66. *BUCHANGA ALBIRICTUS* (Hodgs.).

Not uncommon about Quetta and the plateau of Baluchistan generally, but never seen at Kandahar. A single specimen has, however, been obtained by Lieut. Barnes at Chaman. Leaves Quetta, probably to breed, in May or June.

67. *MUSCIPETA PARADISI* (Linn.).

Colonel Swinhoe obtained two specimens in Kandahar, but I did not see the bird there. It is not very uncommon on the Khwaja Amran and other wooded hills, but has not been found in Quetta or in the country to the south. It may be inferred that it is a straggler from the north. Lieut. Wardlaw-Ramsay found it very common in the Kurum valley.

68. *MUSCICAPA GRISOLA*, Linn.

Common during the spring and autumn migrations. I found it very numerous on the Khwaja Amran in September.

69. *ERYTHROSTERNA PARVA* (Bechst.).

Common everywhere in suitable localities.

70. *MYIOPHONEUS TEMMINCKI* (Vig.).

I obtained a single specimen of this bird in March 1879, Col. Swinhoe got a second, and we saw it on one or two other occasions. It has not been procured further south or in Sind, and must therefore be a straggler from the north.

71. *MONTICOLA CYANUS* (Linn.).

Common all over the province in the colder weather, but less so in summer, for, though a few pairs breed, the majority, no doubt, go to the higher mountains of Central Afghanistan for that purpose. Mr. Seebohm remarks of two specimens shot in September 1881 on the Khwaja Amran, that they are thorough-bred, without any admixture of *M. solitarius*.

72. *MONTICOLA SAXATILIS* (Linn.).

A single specimen was sent to Mr. Hume from Quetta in 1876, and my last batch of skins to him contained a good series. Neither Colonel Swinhoe nor I obtained it in Kandahar, and Mr. Barnes did not procure it at Chaman, though I found it abundant on the hills above that place in September 1881. I got one specimen in the Amadun valley (6500 feet) in June, so that it must breed in our province. Young birds swarm about Quetta in the autumn. I used to kill three or four every morning last year to feed a couple of young foxes. They disappear in the winter, and must, I suppose, spend it in Southern Baluchistan, though Blanford and I did not obtain the bird in our journey through that country in the spring of 1872 till we reached the highlands.

73. *MERULA MAXIMA*, Seebohm.

Common about Kandahar, but does not extend further south.

The wing in two specimens, one male and one female, 5½ inches, and in a second female 5. These correspond exactly

with those noted by Mr. Blanford ('Eastern Persia,' ii. p. 158). This large Eastern form of the common Blackbird thus extends over the whole Iranian plateau.

74. *MERULA UNICOLOR* (Tick.).

A specimen obtained by my collector at Quetta in 1882 was identified as this Thrush by Mr. Blanford. It must be rare, as I did not observe it before.

75. *TURDUS ATRIGULARIS*, Temm.

Very common in winter at Kandahar in some years, and in others hardly seen. Col. Swinhoe failed to obtain it in the winter of 1880-81, while the year before it was swarming in every orchard. It should be noticed that the winter was not a cold one, the only remarkable thing about it being that the rain was unusually late and scanty, not falling till February. Mr. Blanford must have misunderstood me ('Eastern Persia,' ii. p. 159) as to the non-occurrence of this bird in Persia. I have seen it frequently in winter in gardens about Ispahan, though not further south.

76. *TURDUS VISCIVORUS*, Linn.

Common in winter in the higher hills, and occasionally straggles to Quetta, but was not seen about Kandahar.

77. *CHATAURHÆA HUTTONI* (Blyth).

Found everywhere in the province in favourable localities, but nowhere very common. About Kandahar, as in Persia, it is a garden-bird. In the tamarisk-jungle of the Helmund it was abundant.

78. *OTOCOMPSA LEUCOTIS* (Gould).

Common everywhere up to 6000 feet or thereabouts.

79. *ORIOBUS KUNDU*, Sykes.

Common in suitable localities, which, however, are not many, about Kandahar; it is abundant in the extensive orchards and plantations, arriving about the beginning of May. *O. galbula* may also occur, but was not procured. The latter is the only Oriole found in Persia, and a straggler has been shot in Sind. It may be inferred that *O. kundoo* winters in India invariably, and that Arabia is the easternmost winter-

quarters of *O. galbula*, the two probably meeting in summer in Western Afghanistan or Eastern Persia.

80. *PRATINCOLA CAPRATA* (Linn.).

Common all over the region, particularly in winter, a few remaining about Kandahar and Quetta to breed.

81. *PRATINCOLA MAURA* (Pallas).

Not so common as the last, but fairly numerous in the winter. Lieut. Wardlaw-Ramsay found it breeding in Northern Afghanistan.

82. *PRATINCOLA MACRORHYNCHA* (Stol.).

Colonel Swinhoe obtained two specimens. I did not observe it.

83. *SAXICOLA OPISTHOLEUCA*, Strickland.

Rare. I only obtained two specimens, in February and March 1879, at Kandahar. Swinhoe did not procure it.

84. *SAXICOLA PICATA*, Blyth.

Arrives from India in very early spring and breeds at once. I procured it in Kandahar on the 3rd of February.

85. *SAXICOLA ALBONIGRA*, Hume.

A permanent resident throughout the provinces. Swinhoe observes that it leaves Kandahar in late winter, but I got an adult male and a nestling in May.

86. *SAXICOLA FINSCHI*, Heugl.

Rather uncommon. Dr. Duke obtained two specimens at Quetta, one in February; Col. Swinhoe got one in the same month at Kandahar, and I shot a single specimen in Pishin on the 26th September. It is therefore probably a winter straggler from Central Asia.

87. *SAXICOLA ISABELLINA*, Rüpp.

A permanent resident, but locally distributed. Mr. Barnes found it common and breeding about the Khwaja Amran,

88. *SAXICOLA CHRYSOPYGIA*, De Fil.

A winter visitant all over the province, but not common.

89. *SAXICOLA DESERTI*, Rüpp.

Common in suitable localities.

90. *SAXICOLA MONTANA*, Gould.

In the month of September 1881 I shot on the Khwaja Amran three male Stonechats, which puzzled me, and I took them to England for identification. Mr. Seebohm kindly examined them for me, and pronounced two of them to be representatives of the extreme forms of *S. deserti* and *S. montana*, the third being intermediate between them. The *S. montana* form appears rare. Col. Swinhoe got one specimen at Kandahar, but Mr. Barnes did not observe it at Chaman.

91. *SAXICOLA MORIO* (Hempr. & Ehr.).

Abundant on its way to and from its summer-quarters. I find that I noted its occurrence in large numbers in Pishin towards the end of September, and that I shot several specimens in Kandahar from March 2nd onwards. Col. Swinhoe is therefore mistaken in supposing it is a summer visitant only, as he is also in giving *S. melanoleuca* on my authority (Ibis, 1888, p. 107). In December 1878 I shot a Stonechat in Quetta, which Mr. Hume doubtfully refers to *S. stapazina*; but as this species has not before been obtained further east than Shiraz, 15° to the west, where I got three specimens, I do not like to include it in the present list. Mr. Barnes notes ('Stray Feathers,' ix. p. 454) that *S. monacha* is very rare at Chaman. It is certainly found in Sind and on the Mckran coast, but has not been obtained by any other observer in our province, and I cannot help thinking that he must have mistaken *S. morio* for *S. monacha*. The former, which he does not mention, is certainly found about Chaman in spring and autumn.

92. *AEDON FAMILIARIS* (Ménétries).

Tolerably common in summer in suitable localities.

93. *RTICILLA RUFIVENTRIS* (Vieill.).94. *RTICILLA ERYTHRONOTA* (Eversm.).

These, the only two Redstarts obtained, are both very numerous in winter, the latter particularly so.

95. *CYANECULA SUECICA* (Linn.).

Common all over the province in summer.

96. *ACROCEPHALUS STENTOREUS* (Hempr. & Ehr.).

Obtained by Dr. Duke at Nal and by myself at Kandahar.
Not very common.

97. *ACROCEPHALUS DUMETORUM*, Blyth.

Obtained by Dr. Duke at Nal.

98. *ACROCEPHALUS AGRICOLA* (Jerd.).

A specimen shot at Chaman in April is referred by Mr. Hume to this species.

99. *LUSCINIOLA MELANOPOGON* (Temm.).

I obtained two specimens at Kandahar.

100. *CETTIA SERICEA* (Temm.).

Col. Swinhoe obtained a single specimen at Kandahar.
I did not observe it.

101. *SCOTOCERCA INQUIETA* (Rüpp.).

Obtained by Dr. Duke in the highlands south of Kelát, and
by myself in Kandahar.

102. *HYPOLAIS RAMA* (Sykes).

Not uncommon all over the province.

103. *HYPOLAIS CALIGATA* (Licht.).

Common in suitable localities.

104. *HYPOLAIS LANGUIDA* (Hempr. & Ehr.).

Col. Swinhoe obtained a single specimen at Chaman.

105. *PHYLLOSCOPUS TRISTIS*, Blyth.

Very common all over the province.

106. *PHYLLOSCOPUS NEGLECTUS*, Hume.

I got a specimen at Kandahar and another at Quetta. The
former was identified by Mr. Hume and the latter by Mr.
Blanford.

107. *PHYLLOSCOPUS NITIDUS*, Blyth.

A single specimen from Kandahar, identified by Mr.
Hume.

108. *SYLVIA JERDONI*, Blyth.

Common. Breeds in the gardens about Quetta, and in the
Ziarat forest.

109. *SYLVIA AFFINIS*, Blyth.

Dr. Duke obtained a specimen, and I got a second, at Kandahar, noted by Mr. Hume as belonging to this species.

110. *SYLVIA MINUSCULA*, Hume.

Col. Swinhoe obtained a single specimen in Kandahar.

111. *MOTACILLA PERSONATA*, Gould.112. *MOTACILLA ALBA*, Linn.

Both common in winter.

113. *CALOBATES MELANOPE* (Pall.).

A rare winter visitant.

114. *BUDYTES RAYI*, Bp.

Neither Col. Swinhoe nor I obtained this Wagtail in Kandahar, but I shot one on the road between Pishin and the city in April 1881, which I gave to Col. Swinhoe, and my identification seems to have been confirmed in England (see *Ibis*, 1888, p. 91). I have since seen what I believe to be *B. rayi* at an elevation of 8000 feet, in September. It is common in Yarkand.

115. *BUDYTES CINEREOCAPILLA* (Savi).

Common on its way to and from its breeding-places.

116. *BUDYTES MELANOCEPHALA* (Licht.).

Very common in spring for a short time, a few remaining about Kandahar to breed.

117. *BUDYTES FLAVA* (Linn.).

I obtained it only about Kandahar, but Dr. Duke shot a young bird at Mastung in June.

118. *BUDYTES CALCARATA* (Hodgs.).

Not so common as the last two. A few remain at Kandahar to breed.

119. *BUDYTES CITREOLA* (Pall.).

Common in spring.

120. *ANTHUS TRIVIALIS* (Linn.).

Col. Swinhoe obtained a single specimen at Kandahar, where, he says, it is common in winter. I did not obtain it.

121. *ANTHUS RUFULUS* (Vieill.).

A summer visitor. I got it at Kandahar in June, and Col. Swinhoe on the Pishin road at the end of April.

122. *ANTHUS CAMPESTRIS* (Linn.).

Common in winter.

123. *ANTHUS SORDIDUS* (Rüpp.).

A summer visitor. I obtained it at Kandahar in June, and Dr. Duke near Kelát in May and June.

124. *ANTHUS SPINOLETTA* (Linn.).

Two specimens of a Pipit from Quetta were identified by Mr. Blanford as *A. spinoletta*.

125. *ANTHUS BLAKISTONI*, Swinh.

Very common during the winter.

126. *PARUS CINEREUS*, Vieill.

Very common in gardens and on the hills wherever there are trees.

127. *PARUS BOKHARENSIS*.

A specimen from the Khojak taken to England was identified as *P. bokharensis* by Mr. Seebohm, who remarked that he has no doubt that it interbreeds with *P. cinereus*.

128. *ACCENTOR ATROGULARIS*, Brandt.

A single specimen procured at Quetta by Dr. Duke in November.

129. *CORVUS CORAX*, Linn.

Until I had obtained a large series of Ravens of all sizes, I was under the impression that Mr. Hume's *C. lawrencii* was a good species, but when I found them with wings varying from 16 to 18¾ inches, my faith was shaken. I took four specimens to England, where Mr. Seebohm examined them. All were males, and the length of wing was in two specimens 17½, in one 18½, and in the fourth 18¾. At one time I thought it probable that the larger birds were winter visitors from colder climates; but this is disproved by the fact of the first three of the four specimens above noted having been killed in July and August.

130. *CORVUS UMBRINUS*, Hedenb.

It requires sharper eyes than mine to tell this bird and the last apart without a nearer approach than they will usually allow, and it is consequently not very easy to get an accurate notion of their migrations. At first I was under the impression that *C. umbrinus* only remained in the vicinity of Kandahar and Quetta during the summer, and that all birds of that species left in the winter for warmer climes; but this is at best only partially true. It is certain, however, that *C. umbrinus* is far commoner in summer than in winter, the reverse being the case with *C. corax*. In 1879 I failed to obtain *C. corax* in Kandahar during the summer, and did not see it till September, when I found numbers travelling down the Tarnak valley. In October *C. umbrinus* was not to be found about Kelát-i-Ghilzai, and on my return to Kandahar I found *C. corax* common there. In 1880, the Maiwand year, I had too much to do to spend time in shooting crows; but in 1881 I sacrificed a great many in Quetta during the summer without getting more than one *C. corax*, which, however, was breeding in numbers about the Khojak pass (7200 feet). Last year I had better opportunities of observation, and found both birds in summer and winter alike, *C. umbrinus* being more numerous in summer about the station of Quetta and *C. corax* in winter. About the mountains *C. corax* is always more common. Except when breeding, both kinds are as sociable as Rooks. In a small orchard of fruit-trees at Quetta thousands roost every night in summer and autumn, the trees being black with them. This colony disappears in the winter. Indeed, I doubt if any individual Raven is a permanent inhabitant. All that breed in our province probably migrate in the cold weather, *C. corax* to Sind and *C. umbrinus*, for the most part, to the Mekran coast and Arabia.

131. *CORVUS CORNIX*, Linn.

The Hooded Crow is a rare winter visitant to Kandahar, but does not come further south.

132. *CORVUS FRUGILEGUS*, Linn.

Two or three large flocks extend their winter migrations

as far as Kandahar, where they arrive in January, remaining as late as the beginning of April.

133. *CORVUS MONEDULA*, Linn.

The Jackdaws accompany the Rooks, and appear to remain constantly in their company.

134. *PICA RUSTICA* (Scop.).

Common in gardens, groves, and wooded hills everywhere from Kelát northwards. It is not now met with, however, in the many suitable localities in and about Quetta. Probably it has found itself too tempting a mark for the sportsmen in the British regiments, and has migrated to quieter neighbourhoods.

135. *FREGILUS GRACULUS* (Linn.).

Common throughout the winter all over the plateau, but does not, I think, breed in our region.

136. *STURNUS VULGARIS*, Linn.

Common in winter, but not so numerous as one or both of the next species.

137. *STURNUS PURPURASCENS*, Gould.

Colonel Swinhoe named the two specimens of the Purple Starling he took to England from Kandahar *S. purpurascens*. Mr. Hume, on the other hand, ascribed all the seven skins I sent him to *S. nobilior*. Mr. Sharpe now tells me that he has found three species of Starling among the Kandahar birds in the Hume Collection, probably Hume's *S. nobilior*, and perhaps *S. purpurascens*, in addition to *S. vulgaris*. He will, no doubt, be kind enough to add a note to this paper, giving the correct names of the species.

138. *PASTOR ROSEUS*, Linn.

It may be remembered that Mr. Blanford ('Eastern Persia,' ii. p. 267) calls attention to the extraordinary fact that the Rose-coloured Pastor, which spends the winter in India and breeds in Asia Minor, has not been observed in Central or Southern Persia. Its occurrence in immense flocks in spring and autumn on migration throughout Southern Afghanistan indicates that its path lies across Afghanistan to the

south-east corner of the Caspian, whence it probably follows the Elburz and Taurus ranges to its nesting-homes in the Caucasus, Azarbaijan, and Asia Minor.

In our province the first flocks begin to arrive from India early in April, and the last do not leave it till the end of May. Early in August at latest the return swarms begin to make their appearance, and have not entirely passed till the beginning of October. Its reason for taking this somewhat round-about route is, no doubt, to avoid the wide desert-tracts and low-lying plains which a direct flight would oblige it to cross. By keeping to the highlands of Northern Baluchistan, Southern and Western Afghanistan, and Persian Khorasan, it is able to find a cool climate and spring crops in the fields all the way.

139. *AMADINA MALABARICA* (Linn.).

Occasionally seen about Quetta and to the south, but not observed in Kandahar.

140. *PASSER DOMESTICUS* (Linn.).

The House-Sparrow breeds all over our region, but disappears almost, if not entirely, during the winter, though not so early as August, which Col. Swinhoe gives as the date of its departure. Throughout September it gathers in large flocks before migrating, probably to devastate the millet-fields of Southern Baluchistan and Sind.

141. *PASSER HISPANIOLENSIS* (Temm.).

Common at Kandahar in summer.

142. *PASSER MONTANUS* (Linn.).

The common resident Sparrow of our region.

143. *PETRONIA STULTA* (Gmel.).

Col. Swinhoe obtained three specimens in Kandahar. I did not procure it there or in Quetta.

144. *GYMNORIS FLAVICOLLIS* (Frankl.).

I got a specimen in Kandahar in May, the only one obtained, though this bird extends as far west as Shiraz.

145. *EMBERIZA LEUCOCEPHALA* (S. G. Gmelin).

Two specimens obtained by Colonel Swinhoe in January near Kandahar, and one by Dr. Duke in February at Quetta.

146. *EMBERIZA BUCHANANI*, Blyth.

Very common in spring.

147. *EMBERIZA STEWARTI*, Blyth.

Colonel Swinhoe observed one specimen at Chaman in April, and I got another at Quetta in December.

148. *EMBERIZA STRIOLATA*, Licht.

Not obtained in Kandahar. Dr. Duke found it common south of Kelát in May, and I obtained a specimen at Quetta in December.

149. *EMBERIZA SCHÆNICLUS*, Linn.

Colonel Swinhoe obtained a single specimen at Kandahar in winter.

150. *EUSPIZA MELANOCEPHALA* (Scop.).

The Black-headed Bunting is very numerous in the country south of Kelát in April, and Blanford and I found swarms in Western Baluchistan about the same time. Further north it is at least very rare. I did not observe it myself at all, but Colonel Swinhoe has noted a specimen from Melkerez, some forty miles south of Kandahar. The swarms that winter in India evidently pass through Baluchistan to Persia, where they breed, only a few stragglers finding their way to Afghanistan.

151. *EUSPIZA LUTEOLA* (Sparrm.).

This Bunting, on the other hand, breeds in the highlands of our province, and no doubt in Central Afghanistan also. It is numerous about Kandahar in April, and I found it in June among the cornfields of the valleys above 6000 feet to the east of Quetta.

152. *ERYTHROSPIZA GITHAGINEA* (Licht.).

Colonel Swinhoe records a single specimen from Kandahar, killed on the 3rd February.

153. *ERYTHROSPIZA MONGOLICA* (Swinhoe).

Two specimens sent to Mr. Hume from Chaman, shot in April 1880, were referred to this species.

154. *ERYTHROSPIZA OBSOLETA* (Licht.).

Kandahar appears to be the south-eastern limit of this bird. It is common in winter, and is often netted and brought in for sale. Col. Swinhoe (*Ibis*, 1882, p. 114) says it is found throughout the year, but, as he notes later on that he did not observe it after the 1st April, this was probably a slip of the pen. However, I found it during summer in Persia in localities nearly as hot as Kandahar, though somewhat higher in elevation, and it may breed there.

155. *CARPODACUS ERYTHRINUS* (Pall.).

Passing through Kandahar and Quetta, on its way to and from its breeding-place, probably in the high mountains of Central Afghanistan.

156. *CARDUELIS CANICEPS* (Vig.).

Very common in Kandahar in winter, less so in Quetta. It is not found in Persia, where it is replaced by *C. elegans*, so that it may be supposed to breed in the mountains of Northern Afghanistan.

157. *METOPONIA PUSILLA* (Pall.).

A single caged specimen was obtained by Colonel Swinhoe, who was informed by the bird-catchers that "it arrives in flocks in the middle of April, and leaves again in September." It may pass through Kandahar at these times, but can hardly remain there during the summer, as it is known to breed in the high mountains.

158. *FRINGILLA MONTIFRINGILLA*, Linn.

I shot a specimen in winter in a garden at Kandahar, not, as Colonel Swinhoe notes, towards the Helmund.

159. *AMMOMANES DESERTI* (Licht.).

Common throughout our region.

160. *CALANDRELLA BRACHYDACTYLA* (Leisl.).

The Short-toed Lark passes through Southern Afghanistan in immense flocks in spring and autumn, but does not, I believe, breed anywhere within our limits.

161. *MELANOCORYPHA BIMACULATA* (Ménétries).

A winter visitant as far south as Kelát, where it was obtained in March by Dr. Duke.

162. *OTOCORYS PENICILLATA*, Gould.

A few are seen about Kandahar in the winter, but it is not common.

163. *ALAUDA ARVENSIS* (sive *dulcivox*?).

Very common in the winter all over our province, but not observed in summer.

164. *ALAUDA GALGULA* (Frankl.).

A permanent resident, and not, as Colonel Swinhoe states, a summer visitor only. A male shot by me at Quetta in December is in the Hume Collection. It is the common Sky Lark of the country.

165. *GALERIDA CRISTATA* (Linn.).

Found everywhere from the plains of India to 6000 feet or thereabouts, but not so numerous as it is further west.

I believed that I saw the large Desert Lark (*Certhilauda desertorum*) on one occasion on the borders of the desert near Kandahar, and informed Col. Swinhoe, who inserted it, on my authority, in his list. But I am now inclined to doubt its occurrence north of the watershed of the Indian Ocean, without further testimony, and have therefore omitted it. I should add that I have since had better opportunities of observing the fauna of the Helmund desert, and have not seen it.

166. *COLUMBA CASIOTIS* (Bp.).

Very numerous in suitable localities, such as the large gardens about Kandahar and in the wooded hills west of Quetta. It breeds in large numbers in the juniper-forests of Ziarat, 7000–9000 feet, migrating to the lower hills in autumn.

167. *COLUMBA INTERMEDIA*, Strickl.

168. *COLUMBA LIVIA*, Linn.

In the immediate neighbourhood of Kandahar these two species have interbred to such an extent that, as Colonel

Swinhoe remarks, it is not uncommon to find both species with intermediate examples in a single flock. But pigeons found in the vicinity of Asiatic cities probably are always descended more or less from domestic varieties. Afghans and Persians are great pigeon-fanciers, and keep swarms of pigeons for amusement or for the sake of the dung, the most valuable manure in the east. Away from cities white-rumped birds are much rarer, and occasionally, at least, found in separate flocks. They appeared to me and to other observers persistently smaller than the grey-rumped pigeons, and to be more decided rock-lovers. But the common wild pigeon of the country is certainly intermediate, and it is possible that all the white-rumped birds are descended from a domestic cross.

169. *TURTUR COMMUNIS*, Selby.

Rare. Col. Swinhoe obtained one specimen at Kandahar.

170. *TURTUR CAMBAYENSIS* (Gmel.).

Common throughout our province.

171. *TURTUR RISORIUS* (Linn.).

Common above the passes and about Kandahar.

172. *PTEROCLES ARENARIUS* (Linn.).

A few remain to breed, but the majority of the immense flocks seen in winter move northwards in the spring.

173. *PTEROCLES ALCHATA* (Linn.).

Not so generally dispersed as the last species. It seems a more strictly desert form than *P. arenarius*, which rather affects cultivated ground. I found *P. alchata* in July between the Helmund and Kandahar, so that it must breed there.

174. *PTEROCLES CORONATUS*, Licht.

This is the only small Sand Grouse of Southern Afghanistan, and is very generally diffused, though nowhere numerous. It is commonly seen in small parties of half a dozen or so, and is more active on the ground than other Sand Grouse, running about and picking up seeds like a Partridge, whereas *P. alchata* and *P. arenarius* are leisurely and

staid in their gait. It breeds in the Helmand delta -
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staid in their gait. It breeds in the Helmund desert, for I found it common between Kandahar and the river in July.

175. *FRANCOLINUS VULGARIS*, Steph.

Found in suitable localities throughout the province up to 4000 feet. Very numerous in the tamarisk-jungle of the Helmund and among the dwarf palms of Thal Chotiali.

176. *CACCABIS CHUKAR* (J. E. Gray).

The common Partridge of the country at all elevations wherever there is a sufficient extent of hilly ground. Bags of eight or ten brace can still be made within a ride of Quetta.

177. *AMMOPERDIX BONHAMI* (G. R. Gray).

Common everywhere in broken ground near hills at all elevations.

178. *COTURNIX COMMUNIS*, Bonn.

Very numerous in the cornfields of Kandahar in April and May, and breeds in small numbers in similar localities throughout the country.

179. *OTIS TETRAX*, Linn.

I saw several specimens shot by sportsmen about Kandahar, and once put up one myself when riding across country twelve miles south of the city in April.

180. *HOUBARA MACQUEENI* (J. E. Gray).

Common only on the edges of the desert. It breeds further north.

181. *CURSORIUS GALLICUS* (Gmel.).

Numerous in Pishin in autumn. I have not noticed it elsewhere.

182. *GLAREOLA PRATINCOLA* (Linn.).

Rare. Col. Swinhoe obtained a single specimen at Bibi Nani, in the Bolan, outside our province; but I obtained one at Kandahar on the 23rd April, 1879.

183. *CHARADRIUS FULVUS*, Gm.

I shot a Golden Plover near Kelát-i-Ghilzai in October 1879 which had not white axillaries, and which therefore

belonged, I believe, to the Asiatic race. I was unable to preserve it.

184. *ÆGIALITIS CANTIANA* (Lath.).

185. *ÆGIALITIS CURONICA* (Gmel.).

Both common in the cold weather above the passes. The last remains in Kandahar till April.

186. *VANELLUS VULGARIS*, Bechst.

Common in winter.

187. *CHETTUSIA LEUCURA* (Licht.).

Also common in winter.

188. *LOBIVANELLUS INDICUS* (Bodd.).

Common everywhere.

189. *SCOLOPAX RUSTICULA*, Linn.

Fairly plentiful in suitable localities from October to March, most numerous, perhaps, in the extensive orchards and vineyards on the Arghandab river above Kandahar. Here I have known twenty killed by two guns in a couple of days. In spite of the small amount of cover, a few are shot every winter in Quetta. About the end of October 1887 I got one in a small patch of wood in the Residency garden.

190. *GALLINAGO SOLITARIA* (Hodgs.).

A single specimen was procured by Dr. Duke near Kelât in December 1877. It has not since been recorded.

191. *GALLINAGO CÆLESTIS*, Frenz.

Snipe are very plentiful in Southern Afghanistan in suitable localities. A large marsh just outside the south gate of Kandahar swarmed with them throughout the winter, but better bags were made along the watercourses and in inundated fields. They arrive early in September, and the stragglers remain until well into April.

192. *LIMNOCRYPTES GALLINULA* (Linn.).

Not very common, except in large marshes. They arrive later and leave earlier than the full Snipe. My specimen, in the Hume Collection, was shot on the 14th February.

193. *LIMOSA ÆGOCEPHALA* (Linn.).

Colonel Swinhoe obtained a specimen near Kandahar on the 22nd March, 1881. I did not observe it.

194. *MACHETES PUGNAX* (Linn.).

Numerous in suitable localities in spring.

195. *TRINGA MINUTA* (Leisl.).

Common in suitable localities during summer.

196. *PHALAROPUS HYPERBOREUS* (Linn.).

Mr. Barnes obtained a specimen at Chaman in 1880 ; and I shot others in the same place in October 1881. They were swimming in a small artificial pool used for watering cattle. I have seen them in similar places at great elevation in Persia.

197. *TOTANUS GLAREOLA* (Gm.).

Common in summer.

198. *TOTANUS CANESCENS* (Gm.).

Not uncommon in winter.

199. *TOTANUS CALIDRIS* (Linn.).

Common in winter up to the middle of April.

200. *HELODROMAS OCHROPUS* (Linn.).

Common in winter. A specimen was procured at Nal (4000 feet) in May.

201. *TRINGOIDES HYPOLEUCUS* (Linn.).

Common in summer.

202. *HIMANTOPUS CANDIDUS* (Bonn.).

Common in early winter and spring. My Kandahar specimens were shot on the 22nd February and 9th April.

203. *PORPHYRIO POLIOCEPHALUS* (Lath.).

Rare. Two or three are killed every autumn in a chain of marshy pools at Quetta, far too small apparently to be the permanent residence of Purple Coots. Colonel Swinhoe got one specimen at Kandahar, where I did not see it.

204. *FULICA ATRA*, Linn.

Very common at Kandahar in winter. The moats of the old citadal are their favourite haunt.

205. *GALLINULA CHLOROPUS* (Linn.).

Rare. I obtained one specimen at Kandahar in April 1879. Colonel Swinhoe does not record it.

206. *PORZANA BAILLONI* (Vieill.).

207. *PORZANA PARVA* (Scop.).

Like Colonel Swinhoe, I found both these Rails numerous about the Kandahar marsh towards the end of winter*, and I got them again at Quetta in the autumn of 1882.

208. *CICONIA ALBA*, Bechst.

Noticed occasionally, both at Kandahar and in Pishin, in spring and autumn.

209. *ARDEA CINEREA*, Linn.

Common.

210. *ARDEA ALBA*, Linn.

Not uncommon about Kandahar.

211. *ARDEA BUBULCUS*, Aud.

I obtained a single specimen at Quetta in May 1887, but have never seen it before or since.

212. *ARDETTA MINUTA* (Linn.).

Not uncommon at Kandahar in summer. I obtained specimens in April, May, and June.

213. *BOTAURUS STELLARIS* (Linn.).

Several Bitterns were shot each winter of our stay in Kandahar.

214. *NYCTICORAX GRISEUS* (Linn.).

There is a small colony of Night Herons in a garden near Kandahar.

215. *PLATALEA LEUCORODIA*, Linn.

I only once saw a Spoonbill, near Kelát-i-Ghilzai, but I have heard of others being shot.

216. *PLEGADIS FALCINELLUS* (Linn.).

A solitary bird of this species found here and there about the country.

* He says *July*, but obviously means *February* (Ibis, 1882, p. 123).

217. *PHŒNICOPTERUS ANTIQUORUM*, Temm.

The occurrence of this bird at Harnai, the extreme limit of our province, has been recently recorded in an Indian sporting newspaper, 'The Asian.'

218. *ANSER*, sp. inc.

As noticed by Col. Swinhoe (Ibis, 1882, p. 123), Wild Geese were frequently observed about Kandahar. They were not *Anser indicus*, but which of the European species they belonged to I cannot say.

219. *CASARCA RUTILA* (Pall.).

Common in winter.

220. *SPATULA CLYPEATA* (Linn.).

Not so common as many other Wild Ducks.

221. *ANAS BOSCHAS*, Linn.

Very numerous, both on the marshes and in the rivers, coming in about the end of October or early in November. I have seen a belated couple or two on the Arghandab as late as the first week in June.

222. *CHAULELASMUS STREPERUS* (Linn.).

Common on the marshes throughout winter, but rare on the rivers.

223. *MARMARONETTA ANGUSTIROSTRIS* (Ménétr.).

Not very uncommon. Most large bags of Duck and Teal contained one or two Marbled Ducks.

224. *DAFILA ACUTA* (Linn.).

I found large flocks of Pintails in the inundated fields bordering the river near Kelát-i-Ghilzai in October. Later on they appeared to be more numerous than any other kind of Duck in the Kandahar marsh.

225. *MARECA PENELOPE* (Linn.).

Wigeon are not common in S. Afghanistan.

226. *ERISMATURA LEUCOCEPHALA* (Scop.).

As has been recorded by Mr. Hume in 'Stray Feathers' (vol. viii. p. 456), I shot a pair of these singular Ducks near

180 *On the Birds of Southern Afghanistan and Kelát.*

Kelát-i-Ghilzai on the 20th October, 1879. I did not meet with this species again.

227. *QUERQUEDULA CRECCA* (Linn.).

The common Teal is found everywhere in suitable localities.

228. *QUERQUEDULA CIRCIA* (Linn.).

Rare.

229. *FULIGULA RUFINA* (Pall.).

Not uncommon.

230. *FULIGULA PERINA* (Linn.).

Not so frequently met with as the last.

231. *FULIGULA CRISTATA* (Linn.).

Not so common as the last.

232. *NYROCA FERRUGINEA* (Gm.).

Very common.

233. *MERGUS ALBELLUS*, Linn.

Three specimens shot at Kandahar were given to Colonel Swinhoe. I did not procure it.

234. *TACHYBAPTES MINOR* (Gmel.).

Common in spring and autumn in suitable localities.

235. *LARUS RIDIBUNDUS*, Linn.

Very common in winter.

236. *STERNA MELANOASTRA*, Temm.

In the autumn of 1881 I shot a Tern at Quetta, which I believe belonged to this species. It is in the Hume Collection.

237. *PHALACROCORAX CARBO* (Linn.).

Occasionally seen on the Arghandab river, but not common.

Abstract

By Her. von. Bremer.

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~~marginalis, rectricibus brevibus
diffusis; humeris viri-
dioribus.~~

1. *... ..*
2. *... ..*

XIV.—*Descriptions of two new Birds from Northern Peru.*

By HANS VON BERLEPSCH.

(Plate VI.)

1. BROTOGERYS GUSTAVI, sp. nov. (Plate VI.)

B. corpore obscure viridi, subtus dilutiore; pileo leviter cyaneo tincto; remigibus rectricibusque cyaneis viridi marginatis, rectricibus externis fere unicoloribus viridibus; humeris vel tectricibus alarum minoribus superioribus anterioribus, margine alarum toto cum tectrice primariorum extima, necnon tectricibus alarum inferioribus anterioribus aureo-flavis; mento croceo; rostro pallide corneo; pedibus corneis. Long. tot. 180-190, al. 113-117, caud. 60-68, rostr. culm. 19-20, tars. $12\frac{1}{2}$ - $13\frac{1}{2}$ mm.

Obs. *B. jugulari* ex Amaz. sup. valde affinis hæc nova species, sed humeris cum margine alarum pure *aureo-flavis*, nec viridibus, primo visu distinguenda.

Hab. Tuanfué, Huallaga super., Peruviae or. (three specimens collected in August 1887 by Mr. Gustav Garlepp).

Mus. Berlepsch, Nehr Korn, Salvin-Godman.

This fine new species I have dedicated to its discoverer, Mr. Gustav Garlepp, of Köthen, Anhalt, who has collected birds during the last three years in different places in Northeastern Peru, and has been fortunate enough to get several of great rarity, such as *Conurus roseifrons*, Gray (in great numbers), *Ara couloni*, Scl., *Pteroglossus beauharnaisi*, *Zebrilus pumilus* (hitherto only known from Guiana), and many others of considerable interest. Mr. Garlepp tells me that *Brotogerys gustavi* was by no means an uncommon bird in the vicinity of Tuanfué, a place situated far up on the Huallaga. It is quite possible that this Parrot is the representative of the common *B. jugularis* of Upper Amazonia, in the last-named region. At the same time, it is probable that there exist still many other novelties in that little-known country, where Mr. Garlepp, unfortunately, collected but few specimens of birds.

B. gustavi is evidently a near ally of *B. jugularis*, Deville, but in the latter species there is no yellow whatever on the

wing, whereas in *B. gustavi* the shoulders, or the anterior least upper wing-coverts, the anterior margin of the wing, the first of the coverts of the primaries, and the anterior under wing-coverts, are of a *fine golden yellow*. It appears also that in the new species the chin is of a paler orange-rufous. The front is not suffused with yellowish, as in *B. jugularis*, and the back appears to be of a darker green; the wings, too, are a little shorter.

As well in coloration as geographically, *B. gustavi* seems to be intermediate between *B. jugularis* and *B. chrysosema*, the latter species showing also some yellow in the wing, but being further distinguished by possessing an orange border to the front.

The three specimens collected by Mr. Garlepp do not show any differences in their coloration.

2. PHAËTHORNIS RIOJÆ, sp. n.

P. striigulari affinis, sed major: differt etiam corpore subtus rufescentiore, et gula superiore nigrescentiore; rectricum externarum apicibus subtilissime albo marginatis (nec late fulvo apicatis); tectricibus subcaudalibus *pure albis* nec fulvescentibus; macula pectorali fere ut in *Ph. pygmæo* e plumis latis nigro-viridibus (in *Ph. striigulari* omnino absentibus). Long. tot. 110, al. 44½, rectr. intermed. 41½, submed. 36½, extern. 22½, rostr. culm. 23½ mm.

Hab. Rioja, Peru septentr. (one specimen, marked male, collected by Mr. Gustav Garlepp, May 23, 1887, number 525).

Mus. H. v. Berlepsch (type).

This is evidently a new species of *Phaëthornis*, nearly allied to, but easily distinguishable from, *P. striigularis* by its larger size, blacker throat, deeper fulvous abdomen, pure white, not fulvous, under tail-coverts, and narrow white borders instead of broad fulvous tips to the outer tail-feathers. The feathers in the middle of the breast are broad and greenish black; they form a tuft somewhat as in the male of *P. pygmæus* and its allies, while such a tuft is altogether wanting in *P. striigularis*.

XV.—On the "Manus" of Phœnicopterus.

By W. K. PARKER, F.R.S.

IN a note "On the secondary Carpals, Metacarpals, and Digital Rays in the Wings of existing Carinate Birds," published in the Proceedings of the Royal Society (vol. xliii. pp. 322–325, 1888), I have spoken of the presence of *claws* on the first and second digits (pollex and index) of birds (see p. 323).

"In some birds [I said], *e. g.* the Passerines, the pollex, or first digit, has only one phalanx attached to its short metacarpal, the second only two, and the third only one phalanx. In other birds, such as the Plovers, Gulls, and Cormorants, an additional or ungual phalanx is found on the first and second digit; and in some others (*e. g.* *Numenius*), during their embryonic state, a small nucleus also is seen on the end of the aborted phalanx of the third digit."

Further research, made since the passage quoted above was written, has satisfied me that, besides the Passerines, those Picarian forms that have the wing most like that of the Passerines (*e. g.* the Picidæ, Rhamphastidæ, and Alcedinidæ) are entirely without the distal phalanx on the pollex and index.

Except in these cases, and in the abortive and greatly specialized wings of the Penguins, all the other Carinatae have, either for a time or permanently, an ungual phalanx on both the index and pollex. As a rule, that of the pollex only has a neatly formed horny claw covering the little bone, the claw of the index becoming more and more aborted during growth. In the Parrots, however (*e. g.* *Stringops*), the ripe embryo has two well-formed claws, but that on the index is three times as large as that on the pollex.

In *Phœnicopterus ignipalliat* the claw on the ungual phalanx of the pollex is well formed and is 8 millim. long; that on the index has lost its proper form, and is a thin epidermic skin over the little third phalanx, which is 3.5 millim. long.

The "manus" in this bird is long and slender; the humerus is 195 millim. long, the ulna 207 millim., and the manus

163 millim., so that the distal member of the wing is more than three fourths the length of the ulna, and five sixths the length of the humerus.

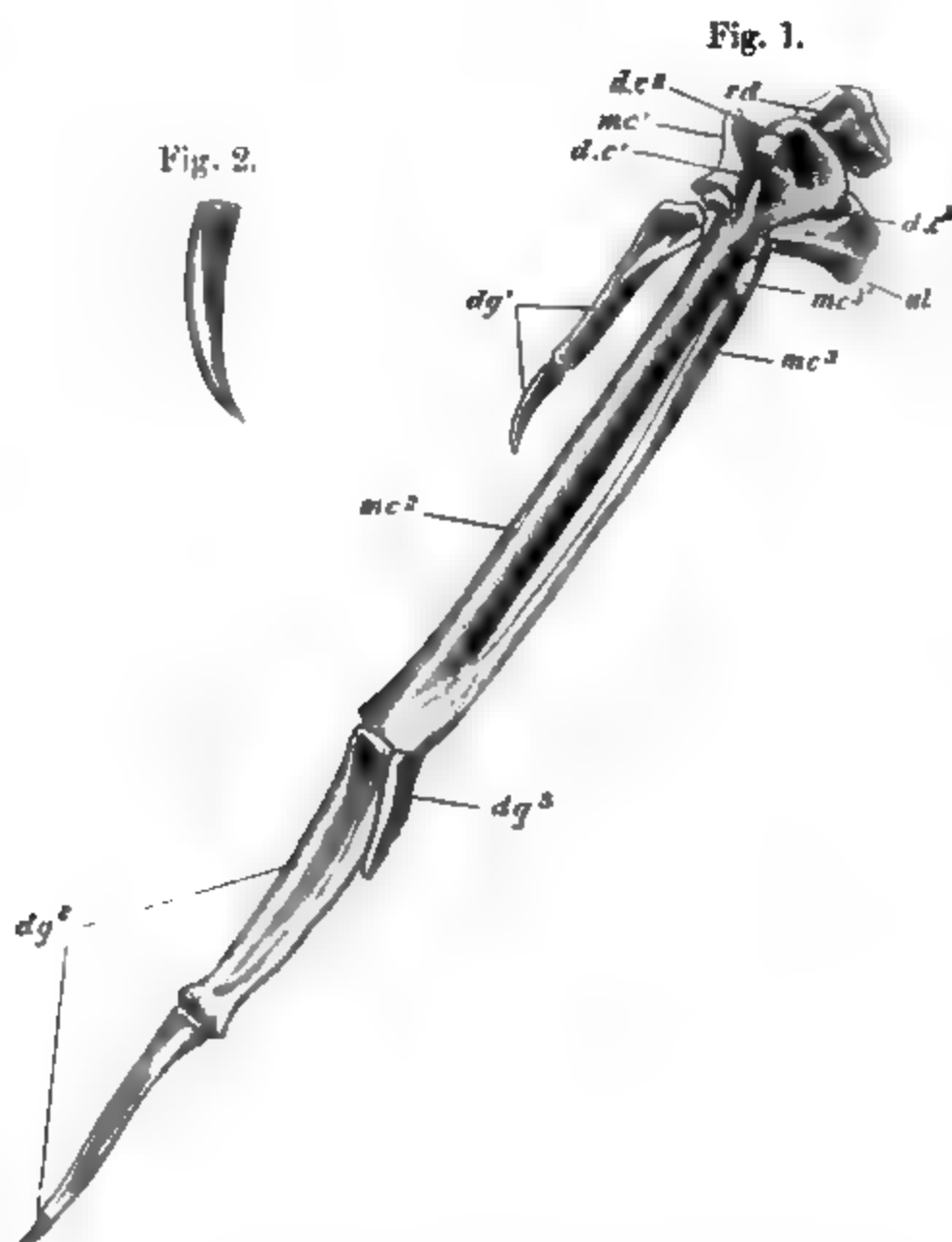


Fig. 1. Inner view of right manus of *Phœnicopterus ignipalliatu*, $\frac{2}{3}$ nat. size. *rd*, radiale; *ul*, ulnare; *d.c'*, 1st distal carpal; *d.c''*, 2nd distal carpal; *d.c'''*, 3rd distal carpal; *mc'*, 1st metacarpal; *mc''*, 2nd metacarpal; *mc'''*, 3rd metacarpal; *mc''''*, rudiment of 4th metacarpal; *dg'*, 1st digit (pollex); *dg''*, 2nd digit (index); *dg'''*, 3rd digit.

Fig. 2. Claw of pollex of ditto, $1\frac{1}{2}$ nat. size.

This, then, is a good average, as to these proportions, in a long-winged bird, the most extraordinary forms being the "Macrochires" on the one hand, with their short arm and forearm and enormously long manus; and on the other hand the

Hornbills (Bucerotidæ), in which the humerus is moderate, the ulna very long, and the manus extremely short.

In *Phaenicopterus* (see figure, p. 184) the two free carpals, radiale and ulnare, are large and well formed; the three fused distal carpals are also normal; there is an oval rudiment of the fourth metacarpal (*mc*³) on the inner face of the third at its proximal end. The bony bridge over the outside of the long interosseous space, formed by an intercalary element, is aborted, and there is scarcely any flanging-out of the first phalanx of the pollex and the second of the index, such as is seen in many long-winged birds, also due to secondary elements; but the first phalanx of the index has the normal dilatation. This phalanx has no interosseous space in it, such as is seen in certain birds. The phalanx of the third digit is only three fifths of the length of this dilated bone; it is slightly arcuate, and strongly attached to the other bone on its ulnar edge.

On the whole, this is a very perfectly formed wing, and is more like that of an Ibis than that of a Goose, as, indeed, is much of the structure of *Phaenicopterus**.

XVI.—*On the Ornithology of Northern Borneo.* By R. BOWDLER SHARPE, F.L.S., F.Z.S., &c. *With Notes* by JOHN WHITEHEAD.—Part II.†

(Plates VII., VIII.)

Fam. ORIOLIDÆ.

33. ORIOLUS XANTHONOTUS.

Oriolus xanthonotus, Horsf.; Sharpe, Cat. B. iii. p. 213; Salvad. Ucc. Born. p. 277; Sharpe, Ibis, 1879, p. 251.

a. ♀ ad. Benkoka, Nov. 22, 1885.

b. ♀ ad. Kina Balu, Jan. 14, 1888.

c. ♂ ad. Kina Balu, March 1887.

d. ♂ juv. Kina Balu, April 1888.

* Professor Huxley (Proc. Zool. Soc. 1867, p. 461) has overstated the Anserine characters of this bird; its "basi-ptyergoids" are aborted, as in the Ibises.

† Continued from p. 85.

[Iris dark lake; bill dull pinkish red; feet blackish brown. Fairly common, frequenting the higher trees in the jungle. It does not extend up Kina Balu beyond 1000 feet. Native name "Burong Sarawak."]

34. *ORIOLOUS VULNERATUS*.

Oriolus vulneratus, Sharpe, Ibis, 1887, p. 438.

a, b. ♀ ♂ ad. Kina Balu, Feb. 25.

c. ♂ juv. Kina Balu, March 5.

d. ♂ ad. Kina Balu, March 29.

The young bird merely differs from the adult in being altogether duller black, with much less gloss. The breast-patch is very small, and the primary-coverts have only a slight reddish tinge at the end.

[This Oriole was only met with on Kina Balu, and first made its appearance at an altitude of about 3000 feet. It frequents only the higher trees and never leaves the forest. The nesting-season is apparently in February, as the females shot during that month had well-developed eggs in the ovaries, and a full-grown fledgling was procured early in March. Adults had the bill whitish cobalt, darker blue at the base; feet darker blue, the soles yellowish.]

Fam. DICRURIDÆ.

35. *CHIBIA BORNEENSIS*.

Chibia borneensis, Sharpe, P. Z. S. 1879, p. 246; id. Ibis, 1879, p. 251.

a, b, c. ♀ ad. Kina Balu, Jan. 1888. Wing 4·5–4·65 inches.

d. ♂ ad. Kina Balu, March 20, 1887. Wing 5·85 inches.

e, f. ♂ ad. Kina Balu, April 1888. Wing 5·5–5·9 inches.

g, h. ♀ juv. Kina Balu, April 1888. Wing 5·4 inches.

This is a beautiful Drongo when in perfect plumage, with the hair-like plumes well developed on the forehead and the tail-feathers curved upwards at the ends. The young birds are browner underneath, with less gloss, and the spangles are decidedly smaller, the frontal hairs are only slightly developed, and the under wing-coverts are spotted with white. The tail-feathers have only a slight curve.

There is very little difference between the sexes when fully

adult, and a very old female will show the frontal "hairs" just as strongly developed as in the old male, but the curve of the tail is never so strongly marked in the hen as it is in the male bird. The non-development of the frontal hairs and the white spots on the under wing-coverts are sure signs of immaturity, and as the latter disappear in the progress towards maturity, so are the frontal hairs correspondingly developed. It is remarkable to see how long traces of the white spots on the under wing-coverts are preserved, even when the birds are otherwise in beautiful plumage. Very old individuals, however, are absolutely unspotted on the lower surface of the wing.

[The iris is lake, bill and feet black. Like its relation *Buchanga stigmatops*, this Drongo prefers the neighbourhood of clearings made by man, where no doubt the food-supply is greater than in the thick forest. It frequents, however, the more open places in the latter up to about 5000 feet. I found several nests near the Dusan "campongs" containing two eggs, which were of a very pale salmon-pink, dotted all over with reddish spots and underlying grey spots and mottlings, chiefly collected near the larger end. Length 1.1–1.15 in., diam. 0.8–0.85. One nest was taken on the 20th of March, 1888, and another on the 20th of May. After the manner of Drongos the nest is placed at the end of a long bough at no great height from the ground; it is a shallow structure, consisting of roots neatly twisted round the fork of a slender bough. Dusan name "Limbas."]

36. BUCHANGA STIGMATOPS.

Buchanga stigmatops, Sharpe, P. Z. S. 1879, p. 247.

a. ♂; *b, c.* ♀ ad. Kina Balu, Jan. 1888.

d, e. ♂ ad. Kina Balu, Feb. 10, 1887.

f. ♂ ad. Kina Balu, March 8, 1888.

g, h. ♂ ad. Kina Balu, April 1888.

This species was described by me from Kina Balu in 1879, when Mr. Burbidge met with some specimens. I have nothing to add to the remarks I then made (*l. c.*). The males measure 4.75–5.1 inches in the wing, and the females from 4.8 to 5.15 inches.

[Dusan name "Mansaluium." Iris lake; bill and feet black. This bird is apparently confined to Kina Balu, but is not found much above 3000 feet. Like *Ianthocincla treacheri* it is one of the ornithological features of the lower slopes of the mountain, being much more plentiful about the Dusan villages and rice-fields than in the thick forest. Like the other species of this genus which have come under my notice in other countries, it is pugnacious in the extreme, attacking even big birds of prey like *Spilornis bacha*, if they approach too near the Drongo's quarters. It has a wonderful power of changing its notes in imitation of those of other species, and I have often heard them calling out at night. At one of my camps a pair had a nest at the end of a very long bough in a high tree, which, again, overhung a steep river-bank. The nest contained two eggs on the 4th of April, which, as far as I could see, were white, but all our attempts to reach them were in vain. This Drongo takes up its position on the edge of a small wood, and thence makes short flights after insects, often returning to the same spot.]

37. *DISSEMURUS BRACHYPHORUS* (Bp.).

Dissemurus brachyphorus, Salvad. Ucc. Born. p. 154; Sharpe, Ibis, 1876, p. 45, 1877, p. 20, 1879, p. 251.

a. ♀ ad. Padas, June 15, 1885.

b. ♂ ad. Benkoka, Sept. 4, 1885.

c. ♀ ad. Benkoka, Oct. 8, 1885.

d. ♂ ad. Lawas River, April 14, 1886.

[Frequents the lower boughs of the high jungle-trees. It has a wonderful bell-like note. Does not ascend Kina Balu.]

Fam. PRIONOPIDÆ.

38. *TEPHRODORNIS GULARIS*.

Tephrodornis gularis (Raffl.), Sharpe, Cat. B. iii. p. 278; Salvad. t. c. p. 156; Sharpe, Ibis, 1879, p. 252.

a. ♂ ad. Kina Balu, Feb. 20, 1887. Wing 4·1 inches.

b. ♀ ad. Kina Balu, Feb. 27, 1887. Wing 3·8 inches.

c. ♂ ad. Kina Balu, March 1, 1887. Wing 4·15 inches.

d. ♂ ad. Kina Balu, May 4, 1888. Wing 3·8 inches.

e. ♀ ad. Kina Balu, May 5, 1888. Wing 3·95 inches.

The female is much browner than the male, especially on the wings. The shade on the underparts is also distinctly browner.

[♂ ad. : iris brownish yellow ; feet scaly brown ; bill black. ♀ ad. : iris yellowish green. The young have the eye dark hazel.

I first met with this bird on Kina Balu, at about 3000 feet, where it was somewhat scarce, but I never saw it higher up the mountain. It is fond of sitting about in open places, hawking for insects, but it is also sometimes observed hopping about in the high trees. The young seem to be two in number.]

39. HEMIPUS OBSCURUS.

Hemipus obscurus (Horsf.), Sharpe, Cat. B. iii. p. 305 ; id. Ibis, 1877, p. 20, 1879, p. 252 ; id. P. Z. S. 1879, p. 795.

Myiolestes obscurus, Salvad. t. c. p. 156.

a, b. ♀ ♂ ad. Lawas River, April 9, 1886.

c. ♂ juv. Kina Balu, March 14, 1887.

d. ♂ ad. Kina Balu, Jan. 13, 1888.

The young males are at first evidently like the old females, as Mr. Whitehead has one young male emerging from the brown plumage into the full glossy black of the adult male.

[This is evidently a bird of the low country, but it ascends Kina Balu to a height of 1000 feet. Above that altitude its place is almost immediately taken by the next species. I found it in Malacca and again in Java, but in neither locality at any great height. Iris brown. Feet brownish black ; bill black.]

40. HEMIPUS PICATUS.

Hemipus picatus, Sykes ; Sharpe, Cat. B. iii. p. 307.

a, b. ♂ ad. ; c, d. ♂ juv. Kina Balu, Feb. 25, 1887.

e, f. ♀ ad. Kina Balu.

g. ♂ ; h, i. ♀ ad. Kina Balu, May 1888.

This species is new to Borneo, and on comparison with Tenasserim and Himalayan specimens, I am unable to find the slightest variation. The young males are exactly like the old females, but have a slight greenish gloss on the head.

I now believe that there is no distinction between *H. picatus* and *H. capitalis*.

[Iris, bill, and feet black. Found on Kina Balu from 3000 to 4000 feet, frequenting the lower growth in search of food. This is a difficult bird to preserve, the skin being so tender. It is not a Flycatcher in its habits, but is a thorough Wood Shrike, like *Tephrodornis*. I noticed them in small families of four or five together, but they were not met with above 4000 feet altitude.]

41. *PLATYLOPHUS CORONATUS*.

Platylophus coronatus (Raffl.), Sharpe, Cat. B. iii. p. 318.

a, b. ♂ ♀ ad. Kina Balu, Feb. 1888.

c, d. ♀ ad. ♂ ♀ ad. Kina Balu, March 1887.

e. ♂ ad. Kina Balu, April 12, 1888.

f, g. ♂ ; *h.* ♀ ad. Kina Balu, May 1888.

The sexes are exactly alike in plumage, and in all Mr. Whitehead's series there is scarcely any variation in tint, some being browner and others more rufous. Canon Tristram has kindly lent me the type of *Platylophus lemprieri*, Nicholson (Ibis, 1883, p. 88), which is apparently a good species.

[I have met with this bird only in the low growth of the forests, as high as 3000 feet on Kina Balu. I also procured it at Benkoka.]

Suborder *TURDIFORMES*.

Fam. *CAMPOPHAGIDÆ*.

42. *ARTAMIDES NORMANI*.

Graucalus normani, Sharpe, Ibis, 1887, p. 438.

a, b. ♂ ad. Kina Balu, March.

c. ♀ ad. Kina Balu, Feb. 10.

d. ♀ juv. Kina Balu, March 31.

The young bird is like the female, but with remains of ashy whitish edges to the feathers of the abdomen, while the under tail-coverts and under wing-coverts are barred with white. The female is very closely allied to *Artamides concretus* of Java, but the latter has an evident white quill-lining. Its nearest ally is doubtless *A. melanocephalus* (Salvadori), from Mount Singalan in Sumatra.

[Apparently the only species found on Kina Balu, as *A. sumatrensis* was not met with. It is found between 3000 and 5000 feet, frequenting the old forest, but it is by no means a common bird anywhere. Bill, feet, and iris black.]

43. ARTAMIDES SUMATRENSIS.

Artamides sumatrensis (S. Müll.) ; Sharpe, Cat. B. iv. p. 12 ; id. Ibis, 1879, p. 252.

a. ♂ ; *b, c.* ♀ ad. Benkoka, Oct.

The females are not so closely barred with black on the under tail-coverts as in the Palawan female obtained by Mr. Whitehead.

[Iris straw-yellow ; bill and feet black, the soles of the latter yellow. The only place that I met with this species in Borneo was in Benkoka, where I found a few individuals, always flying very high ; indeed it was some time before I succeeded in getting specimens, all of which were shot from very high trees.]

44. CHLAMYDOCHÆRA JEFFERYI.

Chlamydochæra jefferyi, Sharpe, Ibis, 1887, p. 438, pl. xiii.
a, b. ♂ ♀ ad. Kina Balu, Feb. 25, 1888.
c, d. ♂ ♀ ad. Kina Balu, March 7, 1887.
e. ♂ juv. Kina Balu, Feb. 7, 1888.

The males scarcely vary at all in tint, but some are rather greyer towards the nape than others, and the throat is a little deeper buff in some individuals. In my description of the female I have not noticed the grey at the base of the primaries, which forms a very distinct small speculum. There is a slight difference in the richness of the buff of the throat, and the back is browner in some specimens.

Young males have the secondaries edged with white at the ends, and the black spots are very small. The wing-coverts are also tipped with ochreous-buff spots.

[Found on my first expedition at about 3000 feet, and they were, so far as we observed, always feeding on berries. On my second ascent I found the species as high as 8000 feet ; it is strictly a forest bird, and decidedly local. Iris light reddish brown ; bill black ; feet darkish brown.]

45. PERICROCOTUS IGNEUS.

Pericrocotus igneus, Blyth ; Sharpe, Cat. B. iv. p. 78 ; Salvad. Ucc. Born. p. 144 ; Sharpe, P. Z. S. 1879, pp. 247, 794 ; id. Ibis, 1879, p. 252.

a, b. ♂ ♀ ad. Padas River, April 30, 1886.

[This species is more plentiful where the *Casuarina* trees, which generally skirt the shores, are found. Iris, bill, and feet black.]

46. PERICROCOTUS XANTHOGASTER.

Pericrocotus xanthogaster (Raffl.) ; Sharpe, Cat. B. iv. p. 74.

P. ardens, Salvad. Ucc. Born. p. 143, pl. 2.

a, b. ♂ ♀ ad. Kina Balu, Feb. 18, 1887.

c. ♂ ad. Kina Balu, March 18, 1887.

d, e. ♂ ♀ ad. Kina Balu, March 1887.

Agrees with Sumatran specimens, and only on one male is there a slight fringe of red on the fourth primary, scarcely perceptible. One adult male has the red markings on the secondaries very large on the left wing and very small on the right wing.

[Noticed only between 3000 and 4000 feet on Kina Balu, in company with *P. cinereigula*. Both these birds were seen together, hopping about among the higher branches of a species of pine, often making flights to the other side of the deep gorges.]

47. PERICROCOTUS CINEREIGULA, sp. n.

Pericrocotus montanus, Salvad. ; Sharpe, Ibis, 1887, p. 439 (*nec* Salvad.).

a. ♂ ad. ; *b.* ♂ juv. Kina Balu, Feb. 16, 1887.

c. ♂ juv. Kina Balu, March 1, 1887.

When Mr. Whitehead first sent an example of this species home, I determined it as *P. montanus* of Salvadori. One young male is in the adult female plumage, and agrees so well with the description of Count Salvadori's *P. montanus*, that I did not hesitate to call it by that name. I must confess that I now describe the species as new with great diffidence, but I see no alternative. I propose to restrict the name *montanus*,

so far as Borneo is concerned, to the bird of the higher portion of Kina Balu, as it is more likely to be the same as the species from high Sumatra than is the bird of the lower level. It will, however, be impossible to determine the question until the male of the true *P. montanus* is known.

The diagnosis of *P. cinereigula* is as follows :—

Similis *P. montano*, sed gutture et regione parotica cinereis nec nigris distinguendus. Long. tot. 6·8, culmin. 0·5, alæ 3·1, caudæ 3·5, tarsi 0·55.

It will thus be seen that the only difference between *P. cinereigula* and *P. montanus* lies in the ashy-grey throat and ear-coverts of the former, and it might be thought that *P. cinereigula* was only a male of *P. montanus* in an intermediate stage of plumage. Luckily, however, we know that, in the genus *Pericrocotus*, when the young males moult from the first female-like dress they pass at once to the full plumage of the male, and assume the black throat straight off. As in every respect the type of *P. cinereigula* is fully adult, and perfectly black and red in other parts of the plumage, there is no reason to suppose that the bird is otherwise than in full dress. It will be seen, also, that the elevations inhabited by the two species are quite different.

[Iris dark hazel; bill and feet black. I shot this bird along with specimens of *P. xanthogaster*. The two species were mingled together in flocks, and it was only on picking up the birds that I discovered that there were two kinds. It was not seen above 3000 feet.]

48. PERICROCOTUS MONTANUS.

Pericrocotus montanus, Salvad. Ann. Mus. Civic. Genov. xiv. p. 205 (1879).

a, b. ♂ ad. Kina Balu, Feb. 1, 1888.

c, d. ♀ ad. Kina Balu, Feb. 21, 1888.

e. ♂ ad. Kina Balu, March 1, 1888.

The males have the wing 3·05–3·1 inches, and the females 3·05. This species is very closely allied to *P. wrayi* of Perak (*cf.* Sharpe, P. Z. S. 1888, p. 269, pl. xv.), but the latter has the inner quill-lining orange, whilst in *P. montanus* it is ver-

milion; in other respects they are similar, and the Perak species will require careful comparison with the Sumatran *P. montanus* when the male of the latter is discovered.

[Iris, bill, and feet black. All the males are exactly alike, with black throats, and this is the only *Pericrocotus* on the higher parts of the mountain. I only met with it at about 8000 feet.]

49. *LALAGE CULMINATA*.

Lalage culminata (Hay); Sharpe, Cat. B. iv. p. 104; id. Ibis, 1879, p. 253; id. P. Z. S. 1879, p. 794.

a, b. ♂ ♀ ad. Kina Balu, March 24, 1887.

c, d. ♂ ♀ ad. Kina Balu, March 9, 1887.

The males have the wing 3·85–3·9 inches, and the females 3·8 inches.

[Iris dark brown; bill black; feet black in the males, greyish in the females. Met with on Kina Balu at 3000 feet, but not seen at a greater altitude. I have also noticed the species in the lowlands of Northern Borneo.]

50. *LALAGE TERAT*.

Lalage terat (Bodd.); Sharpe, Cat. B. iv. p. 95; Salvad. Ucc. Born. p. 145; Sharpe, P. Z. S. 1879, pp. 336, 794.

a. ♀ ad. Labuan, Aug. 19, 1885.

[Collects together in large flocks towards evening in Labuan, roosting in the mango trees. The note is a kind of chipping sound, like that of a Fieldfare.]

Fam. MUSCICAPIDÆ.

51. *HEMICHELIDON CINEREICEPS*. (Plate VII. fig. 1.)

Hemichelidon cinereiceps, Sharpe, Ibis, 1887, p. 441.

a. ♂ ad. Kina Balu, Feb. 26, 1887.

b, c. ♂ ♀ ad. Kina Balu, Feb. 3, 1888.

The male shot on the 3rd of February has the wing 2·95 inches. The female is exactly like the male. Total length 4·4 inches, culmen 0·4, wing 2·8, tail 1·8, tarsus 0·5.

[Iris black; bill black; feet dark brown. This species was decidedly rare on Kina Balu, and on my first ascent I only got one specimen, while on my second expedition I

could only obtain a single pair. I did not see it above 3000 feet.]

52. ALSEONAX LATIROSTRIS.

Alseonax latirostris (Blyth) *Alseonax latirostris* Blyth, 1872.

♂

1 1/2 in

1 1/4

1 1/2 in

1 1/4 in

1 1/2 in

1 1/4 in

milion; in other respects they are similar, and the Perak species will require careful comparison with the Sumatran *P. montanus* when the male of the latter is discovered.

Its bill, and feet black. All the males are exactly
 this is the only *Pericrocotus*

could only obtain a single pair. I did not see it above 3000 feet.]

52. *ALSEONAX LATIROSTRIS*.

Alseonax latirostris (Raffl.); Sharpe, Cat. B. iv. p. 127.

a. ♀ ad. Kina Balu, Feb. 21, 1887.

[Found at 3000 feet on Kina Balu. I also met with it in Malacca in December and again in Labuan in the same month. It is probably only a visitor in the N.W. monsoon.

53. *POLIOMYIAS LUTEOLA*.

Poliomyias luteola (Pall.); Sharpe, Cat. B. iv. p. 201; id. P. Z. S. 1879, p. 336; id. Ibis, 1879, p. 253.

a, b, c, d. ♂. imm. Kina Balu, March 20, 1887.

e, f. ♂; *g, h.* ♀ ad. Kina Balu, March 24, 1888.

[Evidently only a visitant in Northern Borneo. I first saw it on Kina Balu on the 20th of March, on my first expedition, and on my second ascent I met with the species almost on the same day of the month. On both occasions it was seen at about 3000 feet altitude, and was not observed higher up the mountain.]

54. *MUSCICAPULA HYPERYTHRA*.

Muscicapula hyperythra (Blyth); Sharpe, Cat. B. iv. p. 206; id. Ibis, 1888, p. 385.

a, b. ♂ ad. Kina Balu, Feb. 8, 1888.

c, d. ♂ ♀ ad. Kina Balu, March 27, 1888.

e, f. ♂ ♀ ad. Kina Balu, April 7, 1888.

[Bill black; iris black; legs dirty white. This small Fly-catcher is fairly plentiful between 4000 and 8000 feet on Kina Balu, though I did not meet with it on my first expedition. The nest is a neat little moss-lined cup; it is generally placed, with considerable talent for concealment, right in the loose moss which grows along the trees in profusion. In structure the nest itself is so exactly similar to the mass of moss in which it is placed as almost to escape observation, the entrance being merely a small hole in the side of the overhanging moss. On the 22nd of March I found a nest with two white eggs, the latter so hard-set as

to be incapable of preservation. I met with the species in Java at about 5000 feet.]

55. *MUSCICAPULA WESTERMANNI*.

Muscicapula westermanni, Sharpe, P. Z. S. 1888, p. 270.

M. maculata (nec Tick.), Sharpe, Ibis, 1888, p. 385.

a, b. ♂ ad. Kina Balu, Jan. 1888.

c, d, e. ♂ ; *f, g.* ♀ ad. Kina Balu, Feb. 1888.

I have nothing to add to my note in last year's 'Ibis' (*l. c.*), but it is evident that Mr. Wray was mistaken in his determination of the type specimen, which must be a female, and not a male. At the same time the species is quite distinguishable from *M. maculata* on the strength of the female bird alone.

[Bill, feet, and iris black. One of my hunters discovered a pair engaged in building a nest, and on the 25th of March he again visited the breeding-places. The nest was placed in a creeper in the big forest, at about 40 feet from the ground ; it was quite a small pile of moss, deep, and lined with fine white roots, a very pretty bit of work, and contained one small fawn-coloured egg. The bird would probably have laid two eggs, after the manner of most species in these latitudes. This species ranges from 4000 to 9000 feet.]

56. *XANTHOPYGIA NARCISSINA* (Temm.).

Xanthopygia narcissina, Sharpe, Cat. B. iv. p. 249.

a, b. ♂ ad. et imm. Kina Balu, April 1887.

New to Borneo. The younger male has the orange throat of the adult, but is brown on the back and wings, the latter just showing the white wing-patch. The head and feet are black, and the yellow eyebrow is well developed.

[I first met with this bird on the Lawas River, but the skin was too much damaged for preservation. The two which I got on Kina Balu were also extremely fat and difficult to preserve. They were only procured at about 1000 feet on the mountain, and were evidently bent on migrating northwards.]

57. *XANTHOPYGIA CYANOMELÆNA* (Temm.).

Xanthopygia cyanomelæna, Sharpe, Cat. B. iv. p. 251 ; id. P. Z. S. 1879, p. 337 ; id. Ibis, 1879, p. 253.

- a.* ♀ ad. Kina Balu, Jan. 14, 1888.
b, c. ♂ ; *d.* ♀ ad. Kina Balu, March 1888.
e. ♂ imm. Kina Balu, March 1887.
f. ♀ ad. Kina Balu, Feb. 20, 1888.

A young male, procured in March, has nearly completed his moult, but still retains a few feathers of the old brown plumage. The blue is less bright than in the adults, and has a greenish tinge. The female shot in January is much browner than the bird of the same sex killed in March, the latter being decidedly greyish.

[On my first expedition I only procured a single immature male at about 1000 feet on Kina Balu, but on my second journey this bird was fairly plentiful throughout February and March, at about the same elevation. The males procured on the 24th and 26th of March were in most beautiful plumage, and had evidently assumed their full nuptial dress before flying northwards. They are of course only winter visitants to Northern Borneo. Iris, bill, and feet black.]

58. *TARSIGER HODGSONI* (Moore).

Tarsiger hodgsoni, Sharpe, Cat. B. iv. p. 258 ; id. Ibis, 1887, p. 440.

- a.* ♀ ad. Kina Balu, March 8, 1887.
b. ♂ ad. Kina Balu, March 11, 1887.

I have already (*l. c.*) alluded to these specimens. The species was quite new to Borneo when Mr. Whitehead first met with it.

[I only came across this beautiful species on my first expedition to Kina Balu, when I procured a pair at about 4000 feet elevation. Both sexes had the iris and bill black, and the legs greyish blue.]

59. *HYPOTHYMIS OCCIPITALIS* (Vig.).

Hypothymis occipitalis, Sharpe, Cat. B. iv. p. 275 ; id. P. Z. S. 1879, pp. 337, 794 ; id. Ibis, 1879, p. 253.

Hypothymis azurea, Salvad. Ucc. Born. p. 133 ; Sharpe, Ibis, 1877, p. 18.

- a.* ♂ ad. Kina Balu, March 22, 1887.

[I first met with this Flycatcher in Malacca, and

in Borneo on the Lawas River, and at Benkoka on the north coast of the island. I found it nesting both on the Padas River on the 12th of June, and in Palawan, and got the hen bird on both occasions. The nest, however, and the eggs of the Palawan bird are strikingly different from the Bornean ones. On the Padas the nest was situated about five feet from the ground. It is a firmly made little cup, constructed of twigs and lined with fine roots, and was placed in a large plant in the undergrowth. The eggs have the appearance of those of the Garden Warbler of Europe; they are creamy white, blotched and spotted with brown, and have some large underlying spots of grey, chiefly at the larger end.

The nest which I found in Palawan forms a great contrast to the neat little structure of the Padas. It is not only smaller, but is inartistically constructed, in the loosest manner, of fine roots and spiders' webs &c., but the whole structure was so frail as almost to fall to pieces. The eggs, though somewhat similar in type of marking to those of the Padas bird, are different in colour, being of a light salmon-pink, broadly blotched with red, and showing smaller spots of red and grey. The markings are chiefly collected round the larger end, and the eggs more resemble those of the Common Flycatcher of Europe.

I only procured this species on Kina Balu, up to a height of 1000 feet.]

60. RHIPIDURA ALBICOLLIS (Vieill.).

Rhipidura albicollis, Sharpe, Cat. B. iv. p. 317; id. Ibis, 1887, p. 440.

a. ♂ ad. Kina Balu, Feb. 16, 1887.

b, c. ♂; *d.* ♀ ad. Kina Balu, Feb. 14, 26, 1888.

Apparently quite the same as specimens from Tenasserim. The female is only a little greyer than the male, and is not quite so deep a black, but there is really very little difference in the sexes.

[Iris, bill, and feet black. Met with on the first expedition at 4000 feet, and again on the second ascent at the same elevation. It ascends Kina Balu to quite 9000 feet; this

species, unlike *R. javanica*, frequents thick forest, and does not approach the haunts of man.]

61. RHIPIDURA PERLATA (S. Müll.).

Rhipidura perlata, Sharpe, Cat. B. iv. p. 328; Salvad. t. c. p. 136; Sharpe, Ibis, 1879, p. 253; id. P. Z. S. 1879, p. 794.

Rhipidura rhombifer, Sharpe, Ibis, 1877, p. 18.

a. ♂ ad. Sandakan, April 20, 1885.

[Apparently rare. I only met with it on one occasion, but Mr. Pryer also procured it in the vicinity of Sandakan.]

62. RHIPIDURA JAVANICA (Sparrm.).

Rhipidura javanica, Sharpe, Cat. B. iv. p. 332; id. P. Z. S. 1879, pp. 337, 794.

Leucocerca javanica, Salvad. t. c. p. 135.

a, b. ♂ ad. Kina Balu, March 15–20, 1887.

Mr. Whitehead's series from Labuan quite confirms all that I said about this species in the 'Catalogue.' The males are slightly darker than the females, and the variation in the amount of black on the throat depends much on the way in which the white tips of the feathers become abraded. In some individuals the black bases are entirely hidden by white tips to the feathers, and so the whole throat appears white. As the white tips become abraded, so the black on the throat expands, until there is nothing but a narrow band of white across the lower throat between the black chin and the black collar across the fore neck. The males from Kina Balu have the wing 3·1–3·15 inches, and the females from Labuan measure 2·95–3·25 inches.

[This Fantail is common in Labuan, appearing in all the native clearings and often entering the verandahs of the houses in search of insects. It loves to frequent the lower boughs of trees, often settling on the ground, where it expands its fan-like tail and droops its wings. It is altogether a very graceful little bird. Its note is a four-syllabled squeaking cry of 'Kip-kip-pě-whēēk,' with the accent on the last syllable.

Whilst going up the Lawas River in a boat, I often got the

men to row close to the ' Nipa ' palms, which line both sides of the tide-ways of these tropical rivers, and I found several nests of this Flycatcher perched on the summit of the broken fronds of the dead palms. Eggs taken on the Lawas on the 8th of April, 1886, agree with the description given by Mr. Sharpe (P. Z. S. 1879, p. 337) ; but the grey spots are more collected round the middle of the egg.]

63. *TERPSIPHONE AFFINIS* (Blyth).

Terpsiphone affinis, Sharpe, Cat. B. iv. p. 349 ; Salvad. t. c. p. 137 ; Sharpe, Ibis, 1877, p. 19, 1879, 253 ; id. P. Z. S. 1879, p. 794.

a. ♂ ad. Sandakan, April 15, 1885.

b. ♀ ad. Benkoka, Sept. 18, 1885.

c. ♂ juv. Benkoka, Sept. 1, 1885.

[Met with only in the low country, not seen on Kina Balu.]

64. *PHILENTOMA PYRRHOPTERUM*.

Philentoma pyrrhopterum (T.), Sharpe, Cat. B. iv. p. 366 ; Salvad. t. c. p. 138 ; Sharpe, Ibis, 1877, p. 19, 1879, p. 254 ; id. P. Z. S. 1879, p. 794.

a, b. ♂ ♀ ad. Sandakan, April 15, 1885.

[Shot in the old jungle near the ground.]

65. *RHINOMYIAS RUFICRISSA*.

Rhinomyias ruficrisa, Sharpe, Ibis, 1887, p. 441.

a. ♂ ad. Kina Balu, Feb. 26, 1887.

b. ♀ ad. Kina Balu, March 4, 1887.

c, d. ♂ ♀ ad. Kina Balu, April 12-18, 1888.

The specimens brought back by Mr. Whitehead on his second journey agree with the types. The species is very close to *R. ruficauda* of Basilan.

[Iris dark brown ; bill black ; feet whitish cobalt. This species seems to be very local, and I only met with it in one spot. It was first procured on my ascent of Kina Balu, at a height of about 3000 feet, and on my second journey I came across it in the self-same locality. It is a Flycatcher in its habits, frequenting the lower branches of the high trees.]

· 66. RHINOMYIAS PECTORALIS.

Rhinomyias pectoralis (Salvad.), Sharpe, Cat. B. iv. p. 368 ; id. Ibis, 1879, p. 254 ; id. P. Z. S. 1879, p. 794.

Setaria pectoralis, Salvad. Ucc. Born. p. 233, tav. iv. fig. 1 ; Sharpe, Ibis, 1877, p. 12.

a, b. ♂ ad. Benkoka, Oct. 11–17, 1885.

c. ♀ ad. Benkoka, Nov. 13, 1885.

d. ♀ ad. Kina Balu, Feb. 1888.

[A bird of the low country, but I found it on Kina Balu up to 1000 feet. Here it was nesting and I got the female bird with the nest and eggs. The nest is a neat cup-shaped structure of moss and small sticks. The eggs are like small specimens of those of the European Robin. When fresh they had a bluish tinge which has now faded, and the ground-colour is brownish white thickly clouded all over with faint spots of reddish brown. Length 0·7 in., diam. 0·55. Iris and bill black ; feet flesh-colour.]

67. RHINOMYIAS GULARIS. (Plate VII. fig. 2.)

Rhinomyias gularis, Sharpe, Ibis, 1888, p. 385.

a. ♀ ad. Kina Balu, Jan. 29, 1888.

b, c. ♂ ad. Kina Balu, Feb. 8–16, 1888.

d. ♀ ad. Kina Balu, March 27, 1888.

e. ♂ juv. Kina Balu, March 13, 1888.

The female described by me as “immature” (*l. c.*) is so nearly adult, as it turns out, that it may be taken as full-plumaged, except that it has faint traces of dusky mottling on the abdominal feathers, and small rufous tips to the greater coverts. An adult female procured by Mr. Whitehead on 29th of January has the lower abdomen, vent, and under tail-coverts rufescent. It is also rather more rufous brown above than the adult male, and has the head above rufous brown ; the chin is likewise more rufescent. Wing 3·35 inches.

The young bird has the appearance of a young Robin, being mottled all over with orange-rufous spots on the upper surface, taking the character of longitudinal streaks on the head and mantle. The wing-coverts have also orange-rufous spots at the ends. The throat and abdomen are white, and the rest

of the under surface from the fore neck downwards is thickly mottled with pale orange-rufous and black, the feathers being of the former colour in the centre and edged with black.

[Bill black; legs whitish blue; iris hazel. Found on Kina Balu from 3000 to 7000 feet, but more plentiful at higher elevations. I procured a nest and eggs on the 11th of March at about 3000 feet on the mountain. The nest was entirely composed of moss, with a few small sticks outside, and a few dead leaves; inside it was lined with roots and red fibres.]

The eggs are pale olive greenish, clouded with reddish spots all over, collected somewhat at the larger end, where they form a distinct zone. Length 0.95 in., diam. 0.65.

68. *CULICICAPA CEYLONENSIS*.

Culicicapa ceylonensis (Sw.), Salvad. Ucc. Born. p. 134 (1874); Sharpe, Cat. B. iv. p. 370 (1879).

a. ♀ ad. Kina Balu, Feb. 24, 1887.

b. ♂ ad. Kina Balu, March 13, 1887.

c, d. ♂ ♀ ad. Kina Balu, May 20, 1888.

[On Kina Balu this species is found up to 3000 feet, but does not ascend the mountain to a higher elevation. Close to one of my camps a pair had a nest in a long dangling piece of moss. It was a simple pocket in the moss itself.

The eggs are very pretty, somewhat like those of our English Lesser Whitethroat, being glossy white, plentifully spotted with brown and blotched with underlying mottling, principally towards the larger end. Length 0.95 in., diam. 0.5. The nest also contained an egg of *fugax*, which will be described hereafter.]

69. *CRYPTOLOPHA*.

Cryptolopha tri...

a, b, c. ♂; d, e. ♀

A very curious

the majority

greenish-green

of a pale green

white, with

prevailing tint of the whole set of specimens, and at first sight they would seem to be quite distinct from the true *C. trivirgata* of Java; but mixed with these greyish birds are one or two yellow birds of the Javan type; these occur at the same place and along with the ordinary grey birds, so that no definite character can be drawn from these variations in plumage. The yellower birds may be the young ones.

The sexes measure as follows:—

			Total				
			length.	Culm.	Wing.	Tail.	Tarsus.
a.	♂ ad.	Feb. 3	4.1	0.45	2.35	1.65	0.75
b.	♀ ad.	Feb. 10	3.8	0.5	2.15	1.55	0.75

[Iris black; bill dark brown; feet slaty grey; soles yellow. Only met with on Kina Balu mountain between 5000 and 9000 feet. Its habits are very much like those of a *Regulus*.]

70. *CRYPTOLOPHA SCHWANERI*. (Plate VIII. fig. 2.)

Cryptolopha schwaneri (Blyth), Sharpe, Cat. B. iv. p. 403; id. Ibis, 1887, p. 443.

Abrornis schwaneri, Salvad. Ucc. Born. p. 245.

a. ♂. Kina Balu, Feb. 16, 1887.

b. ♂. Kina Balu, Feb. 24, 1887.

c, d. ♀ ad. Kina Balu, March 22–24, 1887.

e. ♂ ad. Kina Balu, April 20, 1888.

f. ♀ ad. Kina Balu, Jan. 8, 1888.

All Mr. Whitehead's specimens are similar. I have given a full description of a fine pair (*l. c.*).

[Inhabits the tangled bamboo-jungle on the steep sides of Kina Balu, at an elevation of from 3000 to 5000 feet. It has a very pleasing song, and creeps about with very much the habits of a Willow Warbler. Iris black; bill black; feet dull greenish brown.]

71. *CRYPTOLOPHA MONTIS*. (Plate VIII. fig. 1.)

Cryptolopha montis, Sharpe, Ibis, 1887, p. 442.

a. ♂ ad. Kina Balu, Feb. 26, 1887.

b. ♂ ad. Kina Balu, Jan. 29, 1888.

c, d. ♂ ♀ ad. Kina Balu, Feb. 24, 1888.

e, f. ♂ ad. Kina Balu, March 22, 1888.

The female is exactly like the male in colour, and measures :—Total length 3·6 inches, culmen 0·35, wing 1·8, tail 1·45, tarsus 0·65.

[I first met with this little Flycatcher at 4000 feet, on my first expedition to Kina Balu, when I procured a single specimen. At 8000 feet, where I fell in with it again during my second ascent of the mountain, it was much more plentiful. It has a peculiar habit of hovering below the leaves of the big trees and suddenly flying up and snatching an insect. It is most often met with in the thick bamboo undergrowth.]

72. STOPAROLA CERVINIVENTRIS.

Stoparola cerviniventris, Sharpe, Ibis, 1887, p. 444.

a, b. ♂ ♀ ad. Kina Balu, Jan. 29, 1888.

c, d, ♂ ; *e.* ♀ ad. Kina Balu, Feb. 1888.

f. ♂ ad. Kina Balu, March 1887.

g, h. ♂ ♀ ad. Kina Balu, March 18, 1888.

The female is not distinguishable from the male in colour. Total length 5·4 inches, culmen 0·5, wing 3·05, tail 2·15, tarsus 0·65. This species is extremely close to *S. ruficrissa*, but is lighter and more verditer-blue, and the under tail-coverts are paler fawn-colour.

Compared with *S. indigo*, the male of *S. cerviniventris* is distinguished by its much darker blue colour, both above and below, especially on the throat, and by the buff colour of the abdomen, which is perfectly constant throughout the series. The females differ even more than the males, that of *S. indigo* being of a very much lighter blue, inclining to greyish cobalt, while the difference in the colour of the abdomen between the two species is maintained quite as strongly as in the males.

I omitted to give the dimensions of the type specimen, which are as follows :—Total length 5·7 inches, culmen 0·5, wing 3·0, tail 2·15, tarsus 0·65.

[Only one specimen was collected during the first expedition at about 3000 feet, and the species is decidedly rare at this elevation. On ascending the mountain a second time I

found it more plentiful at a higher elevation, between 5000 and 8000 feet. It frequents the real forest, and does not come into the open. Iris, bill, and feet black.]

73. *STOPAROLA THALASSINOIDES*.

Stoparola thalassinoides (Cab.) ; Salvad. Ucc. Born. p. 132 ; Sharpe, Cat. B. iv. p. 439.

a. ♀ ad. Kina Balu, April 1887.

b. ♂ ad. Kina Balu, Jan. 12, 1888.

c. ♀ ad. Kina Balu, April 20, 1888.

The female differs from the male in being much paler and more greyish blue, with no black on the lores, cheeks, or chin, these parts being ashy, washed with blue, like the under surface ; the throat is slightly hoary in appearance, as also the lores. Total length 5 inches, culmen 0·4, wing 2·85, tail 2·15, tarsus 0·6.

[Apparently very rare everywhere, as I only found it on the lower parts of Kina Balu, nowhere above 1000 feet.]

74. *SIPHIA ELEGANS*.

Siphia elegans (T.) ; Sharpe, Cat. B. iv. p. 447 ; id. Ibis, 1879, p. 275.

Cyornis elegans, Salvad. Ucc. Born. p. 130.

a. ♀ ad. Kina Balu, Feb. 24, 1887.

b. ♂ ad. Kina Balu, Oct. 20, 1885.

c. ♂ ad. Kina Balu, Sept. 1885.

[The female was procured on Kina Balu at 3000 feet. It was decidedly an uncommon bird at Benkoka.]

75. *SIPHIA BANYUMAS*.

Siphia banyumas (Horsf.) ; Sharpe, Cat. B. iv. p. 449 ; id. P. Z. S. 1879, pp. 337, 794 ; id. Ibis, 1879, p. 254.

Cyornis banyumas, Salvad. Ucc. Born. p. 130 ; Sharpe, Ibis, 1877, p. 18.

a. ♂ imm. Sandakan, April 22, 1885.

b. ♀ ad. Labuan, Jan. 20, 1886.

c. ♂ ad. Benkoka, Oct. 26, 1885.

[Common enough all over the lowlands, but I never met with it on Kina Balu.]

[To be continued.]

XVII.—*Cyprus and its Birds in 1888.*

By Dr. F. H. H. GUILLEMARD, M.A., F.Z.S. *

UPON bidding adieu to Cyprus, one broiling July day in 1887, I had no definite intention of returning to its, in many respects, uninviting shores. But the island, as is the case with other countries I have visited, has after all a certain charm attaching to it, which is most strongly felt when the traveller has left it, as he thinks, for good. The dust, the heat, the countless insect-pests, the glare of the barren gypseous soil, the wretched treelessness of the place—all these ills became mitigated in my memory by the intervention of time and distance; and when our English autumn arrived, with its attendant fogs and gloom, I remembered little of Cyprus but the glorious freshness of its spring-time and the many kind friends I had made during my wanderings there.

I had interests, too, other than those of a naturalist, which tended to keep it in my mind. No one could ramble as I had for months together over the countless ruins with which almost every acre of it is strewn, or read the history of its past greatness and the infinite vicissitudes it has experienced, without wishing that something could be done to bring to light the many treasures that under any other government but our own would long ago have been reposing upon the shelves of our National Museum. On my return to England I had done my best to bring about such a result. Ultimately it was decided that the Universities of Oxford and Cambridge should join, under the auspices of the Hellenic Society, in the work of archæological research upon the island; and before the autumn the "Cyprus Exploration Fund" had sprung into existence and was in possession of sufficient money to commence operations.

And so it came about—partly in consequence of a promise to assist, as far as it was possible for me to do so, in that work, partly from the desire of our President that I should continue my ornithological researches of the previous season—

* See Dr. Guillemard's former article in *Ibis*, 1888, p. 94.

that I found myself on the 18th November at Marseilles *en route* for Athens and Larnaka. The Mediterranean is almost proverbial for its bad weather, but I do not remember ever having experienced a worse example of it than that we met with before reaching the welcome shelter of the Piræus. Here I was joined by Mr. Ernest Gardner, the Director of the Cyprus Exploration, and on the 30th of November we landed in Larnaka.

I learnt on arrival that not a drop of rain had fallen since I left the island on the 1st July. The surrounding country was of the colour of whity-brown paper, and I saw nothing of interest in the neighbourhood of the town. A day or two later we moved to Nikosia, and providing ourselves with mules and various necessaries, started on a tour round the island, which had for its object the inspection of the different sites which we thought likely to repay excavation.

Had it been my first experience of the island I think I should have quitted it in disgust by the earliest steamer. Miserable weather attended us from the very first. We had not left Nikosia an hour before the long-looked-for rain broke over us, much as the monsoon breaks in India, and we had to struggle through it as best we could to Kyrenia. Next day we pursued our journey under like skies, and, indeed, until our arrival at Limassol about a fortnight later, our unvarying ill fortune in this respect not only left me with an ornithological note-book as barren as the Mesorea in September, but at the same time prevented much being done to further the plans of the Cyprus Exploration Fund. The rocky paths were converted into small torrents, and the Morphon plain was a sheet of mud and water, through which we slipped and splashed at a snail's pace for four hours. Hardly a bird was to be seen, but I noticed one House Martin during our trip, and one or two *Sylvia melanothorax*. This latter bird, I have no doubt, is largely migratory, but a fair number remain in the island throughout the winter.

My journey bore unpleasant fruit in the shape of a slight attack of malarial fever, which more or less incapacitated me for some days, and it was not until New Year's Eve that I

found myself at my old quarters at the Turkish village of Episcopi—the best place from which to work the Limassol salt-lake. My first visit thither was disappointing. Hardly anything worthy of notice was to be found. I saw five Ducks and shot two Snipes only, and was astonished to find that, in spite of the extraordinarily heavy rain that had lately fallen, the marsh was very dry. The slopes at the back of the village were unproductive enough also. White Wagtails there were in great numbers and numerous Goldfinches; but Birds of Prey, so abundant in the island in the summer, were conspicuous by their absence. *Ruticilla titys* was not uncommon; indeed this bird is apparently much more numerous at this season than at any other.

Visiting the lake again on the 5th of January, I found that the Snipes had arrived in considerable numbers, and I also shot *Machetes pugnax*, and saw Wigeon and Mallard, but they were too shy to permit a near approach. In the tamarisk bushes surrounding some smaller pools I chased, for a long time unsuccessfully, a little party of small birds with whose note I was unacquainted, and on eventually obtaining one I found it to be a Chiffchaff, a bird which, as far as my experience goes, has a larger *répertoire* of songs than many society young ladies.

The weather still continued very bad, cold winds and heavy rains being the rule rather than the exception, and I again suffered from a prolonged, although mild, attack of fever. On the 12th January I left for Anoyira, an out-of-the-way hamlet situated on the slopes of the Troödos range, about five hours by mule from Episcopi. Here I found tolerably comfortable quarters in a stable, and was joined by my friend Mr. Hogarth, of Magdalen College, Oxford, both of us being anxious to inspect a monolith of the existence of which we had been informed by the Commissioner, while I was desirous of seeing if the district had not more to offer me in the way of birds than those I had until then visited. In this I was disappointed, for we found literally almost nothing but Woodcocks, Thrushes, and Jackdaws. We were rewarded archæologically, however, by the discovery of more than thirty of the

singular perforated monoliths similar to those at Papho. These latter have been described by Professor Sayce as Phœnician Bethels, or sacred stones; but a careful examination of the Anoyira *trouvailles* threw a very different light upon the question, and there is but little doubt that they are merely oil-presses, and most probably the work of Roman hands. Behind Anoyira was the deep and rugged valley of the Kostithes, which in some places might almost be dignified by the name of gorge, and here the Wood Pigeon and *Caccabis chukar* were to be found. I made but one entry in my note-book during the whole of my stay at this place, the occurrence of the Blackcap on the 18th of January.

Leaving Anoyira I returned to Episcopi, and thence marched for the lighthouse at the extremity of the Akrotiri peninsula, where, on my previous visit to Cyprus, I had resided for some time at the period of the spring migration. I reached it by a path I had not taken before, and found the ground for a distance of a couple of miles or more strewn with fragments of pottery—the period of which it was not easy to fix. Among them I picked up a portion of a Phœnician coloured glass alabastron, but the greater part was probably Roman. At one time this peninsula must have held a very large population, and there can, I think, be little doubt that the Limassol Salt Lake formed originally an extensive and commodious harbour.

The two days I spent here were fruitless. There were innumerable Song Thrushes in the low scrub, and the lighthouse keeper told me that the greater number of them come about the New Year and leave again in March. This, although not quite what might be expected, coincides with my own experience; for there was hardly one of these birds to be seen when I first went to Episcopi, whereas I found them plentiful on passing through that village on my return from Anoyira. *Fringilla serinus*, a few Blackbirds, two Robins, the Herring Gull, and the inevitable *Galerita cristata*—these were, literally, the only birds I saw. My chief object in visiting the lighthouse, however, was to instruct the people to get me the eggs

of *Sylvia melanothorax*; and having left them a skin of the bird with full directions, I returned again to Limassol.

It being evident that whatever the island had to show in the way of birds would, at this season, be confined to the lakes and marshes, I determined to return to Larnaka to work the sheet of water at Voroklini, which afforded me a good number of specimens on my first visit, and thence to proceed to the still larger lake near Famagusta. I therefore rode by easy stages to the former place. The country presents few objects of interest, and under deluges of rain we ploughed wearily along the most miserable combination of bog and rock that ever laid claim to the title of road. It was again with great surprise that I found the Voroklini lake almost dry, for I had left it nearly full in July. I have seen the same sort of thing in Africa, however. These thirsty lands drink up an enormous quantity of water without much surface-result. Then comes saturation, and the lakes will perhaps fill in a night with far less rainfall than that to which they have been exposed for many days previously.

Ring Plovers (*Ægialitis hiaticula*) were the only visitors to this uninviting expanse of mud, so I turned my attention to the neighbouring marsh. This was in good shooting-order and contained an abundance of Snipes, and—what was of more interest to the ornithologist—a flock of Starlings. They were extraordinarily wild, and it was not till many days later that I succeeded in obtaining specimens, which, as will be seen, turned out to be of two species. Other birds there were few, but I shot a very fine male of the common *Circus æruginosus*, and saw a number of Water Rails. I also noticed *Porzana parva* and a solitary Quail. I do not know whether this latter bird is ever abundant in the island, but during my two visits I do not suppose that I saw more than a dozen all told.

The chain of salt lakes south of Larnaka added no more to my collection, although I saw a fine string of Geese passing over them on one occasion; and having wasted a day in cave-digging, in the vain hope of finding some remains of primitive man, I shifted my quarters to Famagusta. The lake here

was quite full, and swimming in the middle, far out of gunshot, a distance that they took good care to keep, were huge flocks of ducks of various species. In my walk round the lake, I noticed Sheldrake, Mallard, Wigeon, Shoveller, Pintail, and Teal, and shot *Sterna fluviatilis* and *Emberiza schæniclus*. Birds were very much more numerous here than at any other part I had till then visited. On the bare low hills surrounding the water were two or three large flocks of Starlings and Green Plovers, but both were quite unapproachable. While fighting my way through some tall reeds from which I hoped to put up some Duck, I several times came upon a small brown bird, but so momentary was my vision of it, and so close was it, that I found it impossible to shoot it. By good luck, however, I managed one day to drive one out of the reeds, and, on securing it, found it to be *Cyanecula wolfi*. These birds were always to be found at this spot, but it was next to impossible to shoot them.

On the 13th of February I saw the first Swallow, eleven days earlier than the date I noted of its arrival in 1887. A few House Martins stay throughout the winter, as I think I have already stated in my former article. A little later I made an excursion to Agia Napa Monastery, an interesting specimen of Lusignan domestic architecture, doubtless a species of manor-house originally. Cape Greco, barren and uninviting enough, lay a mile or two to the east, and here on the rocky ground I succeeded in obtaining *Saxicola finschi*, a bird I had once had brought to me on my first visit in a horribly mangled condition. I have not seen the species more than half a dozen times in the island, and it must be rare. Though much like *S. morio*, the entire white back renders it fairly easy of recognition at a distance. On the way back to Famagusta I shot two Fieldfares out of a small flock feeding in a wheat-field, birds that seemed rather out of place under such burning skies; for just then we happened to be experiencing weather as hot as an English August.

One of the most unfortunate accidents that can possibly occur to a naturalist here fell to my lot. Riding back, gun in hand, from the lake one day, a sudden movement of my

horse, combined with a loose seat on my part, brought the butt of the weapon in contact with his quarters. I was unaware that anything had occurred, but on reaching home found that the stock was broken right through at the grip. I was debating what sort of job I could make of it by splicing it with raw hide, as I have seen done in South Africa, when I was told of a certain little Persian in the bazaars whose skill as a gunsmith was such as to lead to suspicions as to his fate in another world. My experience rather tended to confirm them, for he turned me out a new gun-stock which fitted in a manner that would not have disgraced a London gun-maker.

This accident hindered collecting to some extent, but after having tried in vain ever since my arrival, I at last succeeded in getting a "hunter" to shoot for me, one Elias, a battered-looking Greek, whose face possessed the colour and polish of a copper tea-kettle. This individual was lazy enough, but he had all the instincts of a hunter, and would make nothing of squatting through the night in the wet reeds for ducks, an example which, in the not too healthy Famagusta marshes, I was by no means desirous of following. The enormous number of ducks and the presence of a narrow neck of land between the lake and the sea induced me to try flight-shooting on one or two occasions, but without much success. The mouth of the Pedias river near Salamis afforded me *Totanus ochropus* and *Alcedo ispida*, neither of which I had shot on my first visit, and from the bazaars I got a live Peregrine, the beak of which had been ruthlessly deprived of its point, and its beauty thereby entirely spoilt.

I moved on the 26th of February to Kuklia, a village on the road between Nikosia and Famagusta, where there is a marsh of some extent; next day I tried it. Snipes were fairly plentiful, and I saw *Cypselus apus* and *C. melba* for the first time. The Swallows had by this time all arrived, and were skimming over the marsh in hundreds. I got both Pintails and Shovellers here, and the "shoot-man," as my servant always called him, brought me a number of Starlings, which turned out to be *Sturnus purpurascens*. These birds

I always found haunting the marsh and very shy. *Sturnus vulgaris* I afterwards shot at a farm not far from Salamis. Before leaving Kuklia I had obtained, in addition to the commoner Ducks, *Tadorna cornuta*, *Fuligula nyroca*, *F. cristata*, *Limosa ægocephala*, and a Whimbrel, which was taken by a cat just as I had placed it on my table for skinning.

While shooting in the marsh, I came across a most curious trap, the mode of action and use of which I could not make out. A tiny well, about four inches across and twenty deep, and carefully and smoothly made, was sunk in the marshy ground. On either side two little forked sticks about three inches high supported a light cross stick over the hole, and on this revolved a little bobbin or spool to which a fine string was attached, which led down into the hole; near the end of this string, and at intervals of about two inches from one another, were tied five little cups or tubes closed at one end. These were made from the bamboo-like hollow cane which grows so abundantly near the marshes, and were about the size of half a cigar. One or two of them hung in the water, of which there was a few inches at the bottom of the little well, but the rest were not submerged. The ground near the trap had been cleaned and bared, and then scratched neatly into little ridges and furrows and wetted, and some green duck-weed was also placed in a little heap near. I am in hopes that some reader of 'The Ibis' may be able to explain this trap, about which I am totally in the dark, although I imagine it must be intended in some way to catch Snipes.

Spring in Cyprus is not without its drawbacks, and one of the chief of them is the prevalence of high winds, which in so parched a country are but euphemisms for dust-storms. The spring of 1888 was liberally supplied with them, and we experienced spells of unusually cold weather, although, oddly enough, the season was a rather advanced one. On the 7th of March, when I visited a ruined Venetian watch-tower not very far from the Monastery of Agia Napa, I have a note to the effect that the Asphodels, *Calendula*, and *Ornithogalum* were in full flower and the pretty little Iris, *Sisyrinchium*, nearly so. On this day I shot *Sylvia subalpina*, and ten days

later the Wheatears arrived *en bloc*, just as they had in the previous year. This month is certainly the best for the Snipe-shooter, and it may be fairly said that there are few better places than Cyprus for this sport, if the traveller does not mind rather rough quarters and can depend upon his own resources.

A marsh after the sportsman's own heart is that near Avgosida, whence on the 9th and 10th of March I took twenty-six couple with a friend. There were not, however, many birds of interest to the naturalist, and I find that the Golden Plover, *Tachybaptus fluviatilis*, and *Hoplopterus spinosus* were the only species that I added to my collection; though, but for ill-fortune, the Ruddy Sheldrake should have been of the number—a not uncommon bird in Cyprus, which my hunter Elias afterwards obtained in the Famagusta marsh.

Returning to my old quarters at Famagusta, I remained there until the 21st March, getting nothing of importance except a fine Peregrine, and the first *Oxylophus glandarius* on the 19th. My next move was into the Karpas, the name given to the district which comprises the whole of the great north-east promontory of the island. The southern portion of this, the Vallia, a large extent of waste ground more or less covered with bush, I was anxious to investigate archæologically, while at the same time it seemed probable that it would also be a good collecting-ground. I camped on the outskirts of the Vallia on the second day, and found it a most beautiful place. Junipers, myrtle, and dwarf oak formed a thickish bush, averaging perhaps 10 or 12 feet in height, and myriads of cyclamen, *Allium*, anemones, *Ornithogalum*, and *Ranunculus* covered the ground with flowers. The lovely *Cistus* was just bursting into blossom, and numberless brimstone and orange-tip butterflies were already out. The day was splendid. Full spring seemed to have come at a bound, almost as it does in the far north, and I thought I had seen few places more beautiful.

The Vallia was crowded with ruins and tombs and other objects of archæological interest, which well repaid investigation, but to which it is not necessary here to allude. To

the ornithologist, however, it was barren ground. Francolins there were, indeed, in tolerable plenty, but other birds were few and far between. I obtained here our own Redstart (*Ruticilla phænicura*), which was interesting from the fact that during my first visit I had only seen and shot the eastern *R. mesoleuca*. I saw a Scoter, almost certainly the common *Ædemia nigra*, not far from the shore, and found a tolerable number of *Sylvia melanothorax*, the eggs of which I was so anxious to get; but up to the end of March they had not begun to breed.

The northern range of Cyprus is guarded by three great medieval castles long since fallen into ruins. To one of these, Kantara, I determined to move on the 27th March. I camped in a deserted and ruined monastery, which commanded magnificent views, and made myself comfortable enough in a room in good repair, while my muleteers slept *sub jove* round a good camp-fire, and my servant prepared his bed in the church, his sleep undisturbed by the candles that the muleteers had lighted at the altar. Next day I visited the castle, the path leading under the southern face of three or four gigantic blocks of limestone rock, in the most inaccessible parts of which *Cypselus melba*, *Cotile rupestris*, and some Eagles, most probably *Aquila bonellii*, were breeding. But the interest of the place lay in the castle and the magnificent panorama obtainable from it, rather than in the birds, and on my return to Famagusta two or three days later I had made many more additions to my collection of photographs than to my box of skins.

I found some new arrivals at the lake, notably the Garganey, which, though fairly common, is only a temporary resident, and apparently does not stay to breed. *Plegadis falcinellus* was also numerous, feeding on the oozy flats round the lake. I was bound for Larnaka, however, to meet Mr. F. G. Heathcote, of Trinity College, Cambridge, and did not stay longer than was necessary to prepare the few skins I had in my collecting-box. At Larnaka I got a specimen of *Ardea purpurea* and some other unimportant birds, but found the lake much poorer in birds than that at Famagusta. While

here I heard of an extraordinary cave, and rode over some nine or ten miles to explore it, having previously sent out men with picks and spades in readiness for digging. It was a most curious place, in the channel of a subterranean river which in past ages had carved for itself in the gypseous rock a perfectly straight and wonderfully regular arched passage, about 6 feet high by 5 broad. Up this we went for about two or three hundred yards; but the heat, and the presence in numbers of a large bat, *Cynonycteris collaris*, which flew out and extinguished our candles, eventually put us to flight and we left the place without being much the wiser. The few trenches I dug at various distances from the entrance soon revealed the bed-rock, and as there was evidently nothing to be expected in the way of cave-remains, we took no further trouble to explore the cave.

I saw the first Roller on the 3rd April, and the Bee-eater upon the following day. On the 8th I got my first Marbled Duck (*Anas angustirostris*), a bird I had never handled in the flesh before. This pretty species stays to breed, and I afterwards got its nest and eggs at the Famagusta lake. About the same time, too, the Demoiselle Crane made its appearance. It remains a very short time, merely touching the island in its passage, and in two or three weeks' time not one is to be seen.

I had long had the intention of going to the summit of Troödos in the cold season, hoping that I might possibly get a Woodpecker, Crossbill, or Nuthatch; and accordingly, on the 10th April, I started in company with Mr. Heathcote and a rather formidable mule-train, with the idea of proceeding thither by the shortest route. Our path led us over the wildest parts of the mountains, and we met at one place with the most miserable accommodation and equally miserable weather, but in many ways it was a most interesting trip. We arrived at the summit on the 16th. The change from the summer of the plains was most complete. Here it was winter, the ground covered with snow, and hardly a sign of spring vegetation to be seen. The entire camp and the few houses that are built in its vicinity were, of course, entirely deserted, but, thanks to the kindness of Sir Henry Bulwer,

we were able to make ourselves most comfortable in Government House. The winter had been rather severe, and snow had fallen to the depth of three or four feet. The Moufflon had roamed farther eastward than is customary, and on the day before our arrival some had been seen by the care-takers in close proximity to the house.

We spent a week here, but of this time only two days and a half were clear. On the remainder we were enveloped in mist so thick that it was almost impossible to shoot, and we dared not go more than a hundred yards or so from the house for fear of losing our way. Had the weather been better, we might have done more; as it was, we did not get either Woodpecker or Nuthatch, of both of which birds, by the way, the care-takers, who were always about with a gun, were ignorant. We obtained a good series of *Parus cypriotes*, however, and I was pleased to find the Crossbill (all that I shot being of very dark plumage) in some abundance. The Tree Creeper (*Certhia familiaris*) was very common, and *Cotile rupestris* was nesting under the eaves of the house.

From Troödos we made a two days' march to Papho, where I thought it very probable that I might find *Sylvia melanothorax* breeding, as well as, possibly, some of the other Warblers. I was also desirous of seeing the excavations at the temple of Aphrodite, which had by this time been completely brought to light. On the way down we saw many Golden Orioles, which were said to be particularly plentiful that year. I noticed, as I had on my first visit, that the Hoopoe was, on the whole, not common, not anything like so common, at least, as it is in Greece.

On arrival I found hardly any Warblers in the gardens except the inevitable *Hypolais elaiica*, while not a single *Sylvia melanothorax* was to be seen. We resolved accordingly to return to Nikosia, taking an unused route across the mountains to the west of Nikko. The day before we were to start I heard of an extraordinary bird, an "ἄγριος στρουθός," alive with other birds, some of which it was said to have killed, in an aviary in the town. On going to see it I found a much dilapidated Hawfinch (*Coccothraustes vulgaris*), which was said to have been caught on the slopes of Troödos. It

was considered a very strange bird, and no one had ever seen or heard of one before.

Our departure was delayed by very heavy rains ; the rivers tinging the sea for miles along the coast warned us that mountain-travel was out of the question. On the 2nd May we started. I had been led to take the route settled upon, as it was said to pass through some fine forest, and I thought that there might be a chance of seeing the Woodpecker or Nuthatch, did such birds exist upon the island. It was the longest and worst day I ever experienced in Cyprus, and it was not till the end of 10½ hours' incessant travel and about half that time of equally incessant rain that we got to our destination, a miserable little hamlet on the northern slopes of the mountains. The scenery was wilder and on a grander scale than that of any other part of the island, but we did not come across the birds we were in search of, and only saw two persons during the whole day. On the 4th May we reached Nikosia safely.

One of the objects of my second visit to Cyprus was to hunt for traces of primitive Man. I had already examined several caves without success, but hearing that these were more numerous in the northern range, I left the capital and worked slowly eastward from St. Ilarion. The "castled crags" of this wonderful place afforded shelter to two pairs of Peregrines, and far above our heads floated two Eagles of a species that distance rendered it quite impossible to discover. Mr. Templer, the district judge, who has built his house in a magnificent situation at no great distance from the castle, told me that for two or three years past he had offered the shepherds and others £2 apiece for the young birds of this species, but that no one had succeeded in getting them.

My search after caves was quite as futile. It is almost impossible to make a Cypriote understand what is wanted. To him everything is a σπήλαιον, and he does not differentiate between a rock-hewn tomb and a hole in the limestone rock as large as a good-sized cupboard. I have on several occasions ridden some miles only to find a disappointment of this nature in store for me, and I left Cyprus without having

discovered a single cave where digging either was, or would have been, of the slightest use.

My stay was now drawing to a close, and leaving the northern range on the 19th May, I rode over the vast level plain of the Mesorea to Famagusta, where I had left most of my belongings. Ten hours of such a journey and under such a sun is most wearisome, and there was little in my surroundings to enliven it. Now and again a Thicknee got up under my horse's feet and stole cautiously away, but no Bustard arose to rouse one from the state of Cypriote-like apathy which such rides induce. I reached my destination at night-fall, and next day went down to the lake, which, as I expected, showed a different scene to that I had witnessed on the occasion of my last visit. Birds were abundant. The two beautiful Terns, *Hydrochelidon nigra* and *H. leucoptera*, performed their graceful evolutions in all directions, and Snipes, both Common and Great, were not uncommon in the reeds. My friend procured the Ruff in full plumage, and we also obtained the Bittern, Little Bittern, Stilt, Dunlin, and other Sandpipers, besides Mallard and Shoveller. I stayed a few days to complete my series of skins and to pack up, and then rode in to Larnaka, where my second tour in Cyprus—on the whole a good deal to my regret—came to its conclusion. I watched the island, burnt and barren, yet somehow not without its own peculiar beauty, fading gradually from my sight one evening in early June, and next morning I woke, and lo! there lay before me the smiling greenery of Latakia.

XVIII.—*On an Instance of a Cuckoo Hatching its own Eggs.*

By Oberförster ADOLF MÜLLER*.

On the morning of the 16th of May, 1888, when I was looking over a young plantation in my district of the Royal forest

* [A free translation of an article in the 'Gartenlaube,' vol. xxxvi. No. 25, 1888), which, I think, will interest British ornithologists, containing the first authentic record of such an occurrence. I am told, on the best authority, that Herr Adolf Müller is an excellent observer, and may be thoroughly relied upon.—ED.]

of Hohenschied, a Cuckoo rose suddenly out of the bushes close to me, which, from its pale brownish colour, I recognized as a female bird. I soon discovered in a slight depression of the ground near the spot whence the bird flew up three eggs, which attracted my attention from not being all of the same coloration, and from one of the three being of considerably smaller size than the other two. As I could not recognize the eggs as belonging to any of our smaller birds that breed on the ground, and as the Cuckoo kept flying about me in a curious way, I resolved to conceal myself under a neighbouring hedge in order to watch the bird more closely. After I had been there a few minutes I saw the Cuckoo alight on the ground and crawl towards the place where the eggs were. My idea now was that the Cuckoo was intending to add her egg to the three already there, and I accordingly remained in my hiding-place at least three quarters of an hour, without seeing the Cuckoo take its departure. This long delay, and the circumstance that no other nesting-bird made its appearance in the neighbourhood, led me to suspect that this must be an exceptional case, and made me very eager to investigate it. I therefore cautiously approached the spot, and soon saw the Cuckoo again rise from the ground. On this occasion, after wheeling round in a half-circle, it retreated further off into the forest. A closer examination of the eggs convinced me that two of them presented no remarkable differences in size or structure, although the ground-colour was certainly not the same. I recognized them as Cuckoo's eggs of very fine grain and thin shell. One of them was of the characteristic yellowish-white or pale waxy ground-colour, with dark brown points and a few streaks and scratches. The second, of the same size, was of a reddish-yellow or clay-colour, thickly covered with oil-coloured markings, so that it was something like an egg of the Redbreast. They were at least as large as Yellowhammers' eggs, but more elongated. The most curious egg was the third, which was quite different from the two others. It was very like a Chaffinch's egg, of a greyish-green ground-colour, sparingly marked with smaller reddish and larger

reddish-brown spots, and was remarkable as being thickly spotted at the smaller end instead of the larger. It was not quite so large as a Chaffinch's egg. As I have already stated, the nest was on a patch of bare ground a foot or more in diameter, surrounded by grass and broom-bushes.

After this examination I quickly withdrew to a rather more elevated position in the underwood of the beech-forest. From this spot, with my field-glasses, which I had luckily brought with me, I could survey the ground below me quite clearly. Within six minutes the Cuckoo came back, and after flitting around for some time, alighted near the nesting-place, and proceeded with a characteristic waddle on to the nest. For more than an hour and a half I kept the spot in view. During all this time the Cuckoo sat quiet on the nest, so that there could be no further doubt in my mind that it was sitting on its own eggs.

Until the 25th May I left the Cuckoo to sit undisturbed. On the morning of that day I visited the spot again, and, on the bird flying off, found, to my great joy, a young Cuckoo in the nest. Judging from my observations of young Cuckoos, it seemed to have been hatched about 5 or 6 days, for the shafts of the quills showed on the wings, traces of feathers were visible on the shoulders, and the eyes had begun to open. On one side of the nest I found the reddish-brown and the small egg. The first was crushed in and appeared to be rotten; the second was uninjured, but on attempting to blow it subsequently, I found that it was unfertilized, and only contained a partly dried-up and wasted yolk. No doubt, like the injured one, it was an egg dropped during the time of sitting, and not fully developed nor fecundated, as was apparent from its inferior size, very thin shell, and small contents.

In the meanwhile the sitting bird kept circling around me, flying low, at short intervals, a proof that she had great anxiety for her young one. My experiments with this young Cuckoo led me to quite a different result from that which I had previously formed from the behaviour of two others in the nest of a Redbreast. The latter were always restless,

continually extending their wings over the back, and one of them occasionally thrust his head and neck so far behind him that he fell over. The bird which I was now observing, on the other hand, kept quite quiet, with his head and neck on the bottom of the nest. He did not even stir when I touched him with my finger on the back, in which the characteristic depression found in very young Cuckoos was still discernible, nor when I placed an egg or some similar substance on his back. I concluded therefore that the sitting mother must have herself removed the addled eggs, and not the young Cuckoo, as it is wont to do when in other birds' nests.

After this I returned again to my point of observation, but did not succeed in seeing the young bird fed by the old one, as I was disturbed by some people cutting grass in the neighbourhood, and resolved to defer my further observations until a quieter day.

When I returned to the place on the morning of May 26th, I had several times an opportunity of seeing the young Cuckoo fed by the old one with what appeared to me to be green caterpillars. On the same occasion the young nestling was sat upon and warmed by the mother for a long while. When I arrived at the spot I placed myself at my former post of observation, and saw with my glasses the old bird sitting on the nest. For twenty-two minutes I watched her in this situation, when I was surprised to see her suddenly rise from the ground at several paces distant from the nest and fly away. I seized the opportunity of visiting the nest, and found the young Cuckoo lying in the hollow with its eyes nearly quite open. When I approached, it erected the front part of its body, and opened its orange-coloured mouth, uttering its fine piping cry. The space round the nest was thoroughly cleared of excrement—a striking proof that the mother Cuckoo possesses the ordinary instinct of nest-building birds, that of removing the comparatively large fæces of the young with its bill. About three minutes after I had got back to my hiding-place I saw the old Cuckoo alight on an open spot six or eight footsteps distant from the nest, after

which it fed the young with some green substance, apparently caterpillars, as I could see with my glasses, and then covered it with her body again for about a quarter of an hour. The mother left the spot on this occasion again by flying up from the neighbouring place before mentioned, and not immediately from the nest. Within a few minutes she returned, with a similar lot of food, and after feeding the young one, retired in the same way as was before described. After the second return and feeding the warming of the young bird was again repeated. After a good quarter of an hour in my hiding-place I left the spot without disturbing the old bird.

All through my period of observation in this part of the forest I had noticed the unusual frequency of the calls of the male Cuckoo. I counted at least six individuals challenging one another with their songs. In the higher wood close by I had listened at short intervals to the furious blows of the wing exchanged in combat by the males and to the call-notes of both sexes. I had an entertaining view of the proceedings of the amorous birds, as I passed on my way shortly afterwards. On the tops of the oaks and pines sat the excited males, with their tails carried high and their wings drooping down, repeating their usual call-notes, among which the ordinary "cuckoo" was often prolonged into "cuc-cuc-koo," and in other cases was shortly and abruptly broken off in the middle. Every now and then they dived into the branches in pursuit of the hens, which were recognizable by their paler and browner coloration. In short, this particular spot in the forest was evidently a special rendezvous of Cuckoos. In spite of the unseasonable weather this day (overcast sky and frosty wind), there was a singing and fighting going on which could hardly have been exceeded in the warmest day of May or June.

Anxious to ascertain the reason of such a concourse of Cuckoos at this spot, I dived into the surrounding wood, which was that from which I had seen the mother Cuckoo bring food for her young one. I discovered here, on a group of oaks, a large colony of caterpillars of *Tortrix viridana*, which were easily seen from a distance hanging by

their silky webs, and found also many of them on the leaves. No doubt this colony was the attraction that caused the concourse of Cuckoos.

What I have stated renders it quite clear:—(1) That the Cuckoo, in exceptional circumstances, incubates and hatches one or more of its own eggs, which, in these cases, it apparently lays together in a safe place on the ground without preparing any nest. (2) That the eggs of the same Cuckoo may be very different in colour and markings. If this be so, the purely theoretical idea held in certain quarters that each hen Cuckoo lays eggs of the same colour and markings or of “one peculiar type,” which are destined to be laid in the nests of one particular species of small bird, and are nearly the same colour as those of the foster-mother, and that she only lays them in the nests of this species, falls to the ground.

XIX.—*Note on a small Collection of Birds from Kikombo, Central Africa.* By H. B. TRISTRAM, D.D., F.R.S.

I HAVE recently received from my friend Dr. S. T. Pruen, of the Church Missionary Society, a small collection of well-preserved birdskins, made by him between the middle of April and the end of June in last year (1888). Kikombo is in the region of Ugogo, not far from Mpapwa, and situated at a height of 4000 feet on the western slope of the great Central-African range. Dr. Pruen states in his letter that all the birds he sends may be looked on as residents, being collected in the dry season, when the migrants are absent; and he hopes soon to send a much larger and more general collection. Unfortunately he is not likely at present to be able to fulfil his promise, for very soon after despatching the parcel, the missionaries were warned by H.B.M. Consul to escape with all speed to the coast. Dr. and Mrs. Pruen reached Zanzibar in safety, along with the other English missionaries, after being in the most imminent peril from the Arabs, while the Germans, who left at the same time, have not since been heard of, and were doubtless murdered on the road. The collection contains examples of thirty-two species, none

of which (with one doubtful exception) are new ; but the catalogue may throw light on the southward extension of several Abyssinian species ; and I do not think that any collection has previously been sent from this locality. I give the names in Kigogo, as well as Dr. Pruen's notes, as they may be of use for travellers or collectors.

1. *HALCYON CHELICUTI*, Stanley. Kigogo name "Mleude."
Feeds on water-insects and butterflies, and nests among stones and in holes on the banks of streams.

2. *CORACIAS CAUDATA*, L. "Lukambo."
Feeds on insects on the wing and breeds in holes in trees.

3. *MELITTOPHAGUS PUSILLUS* (P. L. S. Müll.). "Mbitekuli."
Feeds on butterflies, and nests in holes on the banks of streams.

4. *CORYTHAIX LIVINGSTONI*, Gr. "Kulukulu."
Fruit-eater. Builds in the foliage of tall trees.

5. *IRRISOR ERYTHORHYNCHUS* (Lath.). "Yogoyogo."
Food, insects on the wing. Nests in holes in trees.

6. *POGONORHYNCHUS LACHRYMOSUS*, Cab. "Mgole."
Food, insects. Builds among the foliage of trees.

7. *BUCOBAX CAFER*, Verr.

8. *TOCCUS MELANOLEUCUS* (Licht.).

9. *DENDROPICUS HARTLAUBI*, Malh. "Kon'gota."
Breeds in holes in trees.

10. *DRYODROMAS FLAVOCINCTA*, Sharpe, J. f. O. 1882, p. 346.
The type of this bird was obtained by Dr. J. M. Hildebrandt on the Adi river, Ukamboni, on the other side of the Kilimanjaro range. I am not aware of any other specimen than that in the Berlin Museum.

11. *SAXICOLA FALKENSTEINI*, Cab. J. f. Orn. 1875, p. 235.
"Mkuluwa Mbala."

Lives on insects and builds its nest in thorn bushes. There are three specimens, one male and two females, of this Chat. which belongs to the same group as *S. galtoni*, but is very

distinct, and is undoubtedly a good species. Not existing in the British Museum, it has, by an oversight, been omitted in the B. M. Catalogue of Birds; and I was at first led to believe that I had a new species of *Saxicola* to describe. Cabanis's description is unmistakable, and his type was procured by a German collector in the Ugogo region. The sexes are alike.

12. *COSSYPHA HEUGLINI*, Hartl. "Kimbikileku."

An insect-feeder: it builds its nest in the branches of trees.

13. *CRINIGER FLAVIVENTRIS*, Smith. "Komboli."

A fruit-eater, building in trees.

14. *PYCNONOTUS LAYARDI*, Gurn. "Ndendeguli."

Habits like the preceding.

15. *CINNYRIS CRUENTATA*, Rüpp. "Kisonya."

Sucks flowers and hangs its nest in the foliage of trees.

16. *ZOSTEROPS*, sp. inc. "Vimlyelye."

Nests in branches of trees. Like *Z. senegalensis*, but though I believe it distinct, I should hesitate to describe it without further specimens.

17. *DICRURUS MODESTUS*, Hartl. "Mulamba."

Feeds on butterflies and builds in trees. I am not aware that this Drongo has hitherto been recorded from so eastern a locality.

18. *PRIONOPS TALACOMA*, Smith. "Nyanda."

Builds in trees and bushes. Feeds on insects.

19. *EUROCEPHALUS RUEPPELLI*, Bp. "Kungwipala."

Builds in trees. While the preceding species has a more southern range, and has not hitherto been noticed so far north, this bird has not hitherto, so far as I can ascertain, been observed so far south.

20. *TELEPHONUS ANCHIETÆ*, Bocage. "Chibalaga."

This appears to answer to the description of *T. anchieta*, but is decidedly smaller than the measurements given—wing 2·7, tail 2·9.

21. *DRYOSCOPUS AFFINIS* (Gr.).

22. *COSMOPSARUS UNICOLOR*, Shelley. "Sasati."

A pair of this beautiful Starling, first described by Captain Shelley (*Ibis*, 1881, p. 116).

23. *LAMPROCOLIUS CHALYBEIUS*, Ehr. "Quenzi."

Feeds on millet and insects. My specimens are identical with several in the British Museum from Abyssinia, labelled "*L. chalybæus*;" but as these have not yet been worked out, Mr. Sharpe declines to be responsible for the nomenclature of the Museum specimens.

24. *FRINGILLARIA TAHAPISI*, Smith. "Turugu."

25. *PLOCEUS MELANOTIS*, Lafr.

26. *URÆGINTHUS MARIPOSA* (Less.). "Sunha."

The three male specimens all have the brilliant red ear-coverts of the northern species.

27. *LAGONOSTICTA SENEGALA* (L.). "Sunha."

Feeds like the last.

28. *QUELEA ÆTHIOPICA*, Blanf. "Maumbi."

Feeds on millet and weaves its nest.

29. *VIDUA PARADISEA* (L.). "Tumbwe."

Weaves rough nests. The specimen belongs to the race which has been distinguished as *V. verreauxi*, Cass.

30. *PLOCEUS*, sp. ?

31. *QUELEA*, sp. ? "Maumbi."

Of these last two birds there are only female specimens, which I do not venture to determine in the absence of Capt. Shelley.

XX.—*Some Stray Ornithological Notes.*

By H. B. TRISTRAM, D.D., F.R.S.

THE question of the species of the Grebe from Vancouver Island, formerly in Sir W. Jardine's collection, which I supposed to be *Podiceps occidentalis* (*Ibis*, 1887, p. 98), is

finally set at rest. I forwarded the specimen to Washington, and Mr. Ridgway kindly writes to inform me that it proves to be *P. holboelli* in breeding-plumage. So far as I can ascertain, this species is, as yet, unknown in our museums on this side of the Atlantic, which must be my excuse for mistaking its identity.

By a careless slip of the pen I mentioned in the last number of 'The Ibis' (above, p. 23), *Alauda brachydactyla* as occurring in Gran Canaria. I should have written *Alauda* (*Calandrella*) *minor*, Cab., which is the Canarian species. I have just heard from Mr. Meade-Waldo, who is in Tenerife, that he finds *Calandrella minor* on the high ground in that island also, and that it breeds at Laguna.

In going over some skins from the Pacific islands which I had received several years ago for examination at my leisure, and which had been mislaid and forgotten, I find a *Myzomela* sent me by Lieut. G. E. Richards, R.N., from St. Aignans, Louisiade Archipelago, which appears to me to be undescribed. In coloration it most nearly resembles *M. lifuensis*, Layard, but is one third larger, equalling, in fact, in size the largest species of the family; and while in *M. lifuensis* there is a broad black collar intervening between the scarlet head and the scarlet down the centre of the back, in the Louisiade bird the scarlet is uninterrupted, and the scarlet on the throat does not descend so far towards the breast and is very sharply defined. I propose for this species the name

MYZOMELA RUBRO-CUCULLATA, sp. nov.

♂ capite, dorso et uropygio coccineis; alis, cauda et corpore subtus toto cum macula anteoculari intense nec fuliginose nigris; remigum margine interna arcte albida; rostro pedibusque nigris.

Hab. St. Aignans, Louisiade Archipelago.

I subjoin the measurements of the two species:—

M. rubro-cucullata: Long. tot. 5·15, alæ 2·85, caud. 2·25, tars. 0·9, culmin. 0·75.

M. lifuensis: Long. tot. 4·2, alæ 2·3, caud. 1·5, tars. 0·7, culmin. 0·65.

I am disposed to think, and in this view I am supported by Mr. Seebohm, that the *Zosterops* of the Loo Choo Islands ought to be separated from *Z. simplex*, with which Mr. Seebohm (*Ibis*, 1883, p. 234) identified it, at least as a subspecies or variety. I have examined in his and my own collections fourteen specimens, and they all agree very closely in dimensions; but among the enormous series of *Z. simplex* in Mr. Seebohm's collection amassed by Swinhoe, we could only find a single specimen approaching in size that from the Loo Choos. I should therefore, for the present, prefer to distinguish it as *Z. simplex*, var. *loochooensis*, giving the dimensions as follows:—Total length 4·5 inches, wing 2·35–2·4, tail 1·75, tarsus 0·72, culmen 0·52. The coloration in no way differs from that of the continental bird, save, perhaps, in being somewhat deeper in tint.

XXI.—*Notes on Woodpeckers*.—No. XVI. *On some new Species of Picidæ*. By EDWARD HARGITT, F.Z.S.

THE object of this short paper is simply to record some *Picidæ* which I consider entitled to rank as new species. Many of them have been known to me for some time, and I now deem it advisable not to delay the publication of brief diagnoses of their specific characters.

1. *PICUMNUS FLAVIFRONS*, sp. n.

♂ *ad.* Similar to *P. aurifrons*, but differs in having the underparts below the chest spotted (not striped) with black, those feathers on the top of the head which are not tipped with yellow being deep black spotted with pure white.

♀ *jr.* Has the top of the head, occiput, and nape dusky brown striped with white, the breast and abdomen being striped with dusky brownish-olive. It is almost identical with the young of *P. aurifrons*.

Both these specimens were obtained by Mr. Edward Bartlett at Sarayacu, Peru, upon the 17th of July 1865, and they are evidently the adult and young of the same species. The types are in the British Museum.

2. *PICUMNUS WALLACII*, sp. n.

♂ *ad.* Similar to *P. flavifrons*, but differs in having those feathers on the top of the head which are not tipped with yellow umber-brown spotted with dull white; the barring on the chest and the spots on the breast and abdomen pale dusky olive.

Hab. Amazons (*Wallace*): Sclater Collection. Type in the British Museum.

3. *CHLORONERPES GULARIS*, sp. n.

♂ *ad.* Similar to *C. rubiginosus*, but may be distinguished by having the chin and throat black, clearly spotted with yellowish white; the rump and upper tail-coverts barred golden yellow and dusky olive. The whole of the top of the head, occiput, and nape, as well as the malar stripe, are brilliant crimson. Total length 9·5 inches; culmen 1·15; wing 4·9; tail 3·1; tarsus ·85.

Hab. Santa Elena, Antioquia (*Salmon*). The type is in my collection. A second ♂ in my cabinet (from the same locality) corresponds with the above.

In the Paris Museum there is an example labelled "Colombia (*Gerrard*)," evidently one of *Salmon's* skins. It differs from my ♂ in having the forehead and the greater part of the crown dusky, with only a very few of the feathers tipped with red; the malar region, chin, and throat uniform black, excepting a few of the lower feathers of the throat, which are spotted with yellow; the back is strongly tinged with red, and the rump and upper tail-coverts are, as in the male, very yellow and evenly barred. The almost uniform throat and the perfectly uniform malar region are suggestive of youth, but in some respects the bird appears to be adult, and may possibly be the adult female of my species; the measurements are as follows:—Total length 8·5 inches; culmen 1·03; wing 5·0; tail 2·9; tarsus 0·88.

4. *CERCHNEIPICUS OCCIDENTALIS*, sp. n.

♂ *ad.* Similar to *C. tinnunculus*, but differs in having the lateral tail-feathers entirely barred with rufous; the black barring on the plumage (generally) less broad. The di-

mensions are much the same as those of *C. tinnunculus*, excepting the bill, which is rather less powerful in the present western form. The ♀ wants the red malar stripe. The types of this species are in the British Museum, the ♂ being from the Upper Ucayali, Peruvian Amazons, July 24, 1868 (*E. Bartlett*); the ♀ from Brazil (*Argent*), the latter forming part of the Sclater Collection.

5. *CHRYSOCOLAPTES RUFOPUNCTATUS*, sp. n.

♀ *ad.* Similar to *C. lucidus*, but differs in the top of the head and the crest being blackish brown washed with red, the feathers having a triangular apical spot of rufescent buff; the bases of the feathers of the back, as well as of the scapulars and wing-coverts, and that portion of the secondaries which is not red, being brown without any olive tinge; the face is yellowish buff, the ear-coverts as well as the other portion being varied with black stripes; malar region, chin, and throat rufous buff, the former not having a black median line; the ground of the upper tail-coverts brownish black. Total length 9·8 inches; culmen 1·68; wing 5·35; tail 2·75; tarsus 1·12.

Hab. Panaon, Philippines, October 1877 (*Everett*). The type is in the British Museum, and forms part of the Tweeddale Collection.

6. *CHRYSOPHLEGMA HUMII*, sp. n.

♂ *ad.* Similar to *C. mentale*, but differs in having the chin and throat white striped with black; the rufous markings on all the quills form distinct bars, and approach nearer to the tips of these feathers; there is considerably less rufous between the ear-coverts and the occiput. Total length 10·75 inches; culmen 1·4; wing 5·3; tail 3·7; tarsus 0·9.

The ♀ adult differs from the ♂ in having the malar region rufous, the chin being also more or less of this colour. Total length 10·5 inches; culmen 1·4; wing 5·3; tail 3·7; tarsus ·95.

This is the species to which I applied the name of *C. squamicolle* in my recent paper in 'The Ibis,' upon the genus *Chrysophlegma*. I was then under the impression that the

specimen in the Paris Museum, which I considered to be the type of Lesson's *C. squamicolle*, was really the Malaccan species; but a recent examination of this bird has proved to me that it is no other than the Javan *C. mentale*. The species being therefore without a title, I name it after Mr. A. O. Hume, to whom all lovers of Indian ornithology must ever feel grateful.

The types are in my collection, the ♂ being from Malacca, the ♀ from Klang, Salangore, April 7th, 1879 (*W. Davison*).

XXII.—*Notes on Mexican Birds.*

By OSBERT SALVIN and F. DUCANE GODMAN.

It has long been evident to us during our work on the birds of Mexico and Central America that our knowledge of the ornithology of Northern and Central Mexico was most imperfect, and that materials for forming any exact conclusions as to the boundaries of the Nearctic and Neotropical Regions were altogether wanting. The completion of the Botany of the 'Biologia Centrali-Americana' enabled Mr. Hemsley to indicate in a general way where this boundary lies, so far as plants are concerned, and it became a matter of increasing interest to see how far the zoological boundaries conformed thereto. But in the present notes it is not our purpose to discuss so much the question of boundaries, which will be fully gone into on another occasion, as to make known various matters relating to many birds which have come under our notice from the districts in question, with incidental remarks upon the more general subject.

In December of 1887 Godman arrived in Mexico by way of New York and El Paso and the Mexican Central Railway, and remained in the country till May of the following year: during this time he travelled over a portion of Southern Mexico and made a short trip in Yucatan. In all his excursions he had collectors with him. Independent expeditions were also organized to various points. Mr. W. B. Richardson, of Boston, after collecting for a short time in the neigh-

bourhood of Vera Cruz, proceeded by sea to Tampico, with instructions to work the tropical forest northwards in the direction of the Rio Grande. This he carried out, and after spending some time in the neighbourhood of Tampico itself, he travelled northwards nearly parallel to the coast as far as Soto la Marina, when, having left the forest behind him, he turned westward to Ciudad Victoria, and thence into the forest-clad mountains of the Eastern Sierra Madre, and reached an elevation of 5000 feet above the sea and upwards. He then returned direct to Tampico, and leaving the coast he went westward to San Luis Potosi, Aguas Calientes, Zatecas, and the Sierra of Valparaiso and the mountains beyond; thence he returned home.

Mr. F. B. Armstrong, of Corpus Christi, Texas, crossed the Rio Grande at Laredo, and thence travelled to Monterey, Montemorelos, the most southern point visited by him being close to Ciudad Victoria; the district worked by him thus joining Mr. Richardson's.

Mr. William Lloyd, of Marfa, Texas, crossed the Rio Grande at Presidio del Norte and proceeded to Chihuahua, and thence went to Alamos and the western slope of the Sierra Madre of Sonora and Northern Sinaloa, and returned by a more southern route to Chihuahua.

Mr. and Mrs. Herbert H. Smith spent some time at Teapa, in the province of Tabasco, subsequently at Atoyac, on the railway between Vera Cruz and Mexico city, and lastly in the State of Guerrero on the Sierra Madre del Sur, between the Rio Mescala and the port of Acapulco on the Pacific.

Señor Ferrari-Perez made a large collection of birds from the environs of the city of Mexico itself, which we have had the opportunity of examining.

On leaving Mexico, one of Godman's collectors, Mateo Trujillo, made an excursion from Jalapa to the forests of the Cofre de Perote and to the slopes of the Cordillera in the direction of Misantla.

It is from an examination of the results of these collections that the following notes have been derived.

CATHARUS MEXICANUS.

Mr. Ridgway (Proc. U.S. Nat. Mus. x. p. 505) has recently described a *Catharus* from Costa Rica under the name of *C. fumosus*, and with it associates the bird from the State of Panama, and draws a comparison between it and a Guatemalan specimen attributed to *C. mexicanus*. He further expresses his opinion that the birds from Costa Rica and Veragua, referred by us (B. C.-A., Aves, i. p. 6, pl. 2. f. 1) to *C. mexicanus*, belong to this new form. Trujillo's collection adds five specimens to the ten we previously had for examination, so that we now have before us nine specimens from Mexico, three from Guatemala, one from Costa Rica, and two from the State of Panama. Amongst these we do not find a single one that at all suggests the possibility of there being two species represented amongst them. There is some variation in the coloration of the upper surface, and there is a sexual difference in the colour of the head, and this is all. The darkest of our specimens is one from Guatemala, the lightest is from Mexico. We have not seen Mr. Ridgway's specimen; but of this we are satisfied, that *Catharus mexicanus* has an uninterrupted range from Eastern Mexico to the State of Panama. Trujillo's specimens were all obtained in the neighbourhood of Jalapa.

HARPORHYNCHUS OCELLATUS.

This well-marked species has hitherto only been known to us from two specimens obtained in the State of Oaxaca, and it has always been considered one of the rarest of Mexican birds. Señor Ferrari-Perez's collection contains several examples, all shot in the neighbourhood of the city of Mexico, showing that the bird must have been strangely overlooked by collectors for many years.

CAMPYLORHYNCHUS RUFINUCHA.

In our 'Biologia Centrali-Americana,' Aves, i. p. 64, we treated this name as a synonym of *C. capistratus*; but a series of specimens obtained in the neighbourhood of the town of Vera Cruz now convinces us that this is an error, and that the two birds are perfectly distinct, as was urged

by Professor Baird, and again more recently by Mr. Ridgway (Proc. U.S. Nat. Mus. x. p. 507). When we wrote on this bird we had only a single worn specimen before us; but with the series now at our command it is evident that *C. rufinucha* may readily be distinguished by its spotted under surface and its barred crissum. Mr. Ridgway, in the paper just referred to, separates the Guatemalan and Honduras forms of *C. capistratus* under the name of *C. castaneus*, the back and scapulars being of an entirely uniform chestnut. This is the bird figured by Des Murs (Icon. Orn. pl. 63), who had access to Lesson's type of *C. capistratus* in the Paris Museum. We have before us a specimen from Rcalejo, shot while changing the dorsal feathers from a striped or variegated character to one wholly chestnut; other birds from Guatemala are changing in a similar way; furthermore, our specimen from the Motagua valley and another from Guatemala and one from Costa Rica agree in having the dorsal plumage distinctly variegated, so that not only is there no difference in the distribution between *C. capistratus* and *C. castaneus*, but our specimens suggest that the characters upon which they are founded are possibly due to age, season, or sex. Now that *C. rufinucha* is established as a species, we much doubt if *C. capistratus* is found in Mexico at all; we have never seen a specimen, nor has Mr. Ridgway.

Concerning the various species of *Campylorhynchus* in Mexico, we find that *C. zonatus* is by far the commonest on the eastern flank of the mountains, being abundant at Teapa and thence northward to Misantla. In Mexico, at least, it is not confined to the highlands, but approaches the sea both at Vera Cruz and Misantla.

C. bruneicapillus is the only species in the Rio Grande valley, where it is abundant, and thence it spreads southwards to the central States of Aguas Calientes and San Luis Potosi. *C. jocosus* proves to be the prevalent species in the Sierra Madre del Sur, where *C. humilis* also occurs nearer the coast. *C. pallescens* is the only one found in the hills surrounding the Valley of Mexico; and lastly, *C. gularis*, of which the exact locality has been hitherto unknown, proves

to be a bird of the western slope of the Sierra Madre of Sonora, where Mr. Lloyd obtained specimens.

THRYOTHORUS BERLANDIERI.

We have now many specimens of this species from the States of Nuevo Leon and Tamaulipas, as far south as the Eastern Sierra Madre above Ciudad Victoria. These all agree accurately with the description of and comparison with *T. ludovicianus* given by Baird (Birds of North Am., p. 362). Specimens recently received from Corpus Christi, Texas, appear to belong to the true *T. ludovicianus*, so that it is doubtful if *T. berlandieri* crosses the Rio Grande.

AURIPARUS FLAVICEPS.

This characteristic bird of the Rio Grande valley was found by Mr. Richardson at Soto la Marina, Xicotencal, and by Mr. Lloyd at Julines, in Chihuahua, and Quiriego, in Sonora, so that the bird is now thoroughly established as a species of Northern Mexico.

ANTHUS SPRAGUEI.

This species has already been recorded from Mexico, Don F. Ferrari-Perez having obtained a specimen at Puebla (Proc. U.S. Nat. Mus. ix. p. 136). Godman also secured a specimen close to the town of Vera Cruz.

HELINAIA SWAINSONI

is another interesting bird shot in the same neighbourhood, and is quite new to the Mexican list. The winter-quarters of this species were traced to Jamaica by Sir Edward Newton, but it has never previously been seen at this season so far westward, or, indeed, on any part of the mainland of Central or South America.

PARULA NIGRILORA.

This species was included in our fauna as a bird of the Rio Grande valley (Biol. C.-A., Aves, i. p. 121), but we had no specimens from the southern side of the river. We now have many examples from the States of Nuevo Leon and Tamaulipas, the most southern points being Tampico and Valles, in the State of San Luis Potosi. These all agree with typical specimens from the Rio Grande valley.

DENDRÆCA BRYANTI

was found by Mr. Richardson among the lagoons of Tampico, showing a considerable extension of its range along the shores of the Gulf of Mexico in this direction.

GEOTHELYPIS CUCULLATA, sp. n.

♂. Supra flavo-olivacea, pileo antico, loris et capitis lateribus nigerrimis: subtus læte flava; hypochondriis olivaceo lavatis; rostro nigro, pedibus corylinis: long. tota 4·5, alæ 2·1, caudæ 2·1, rostri a rictu 0·6, tarsi 0·8.

♀. Supra unicolor, loris et superciliis pallidioribus; subtus flava, pectore ochraceo tincto.

Hab. Mexico, Jalapa, Cofre de Perote (*M. Trujillo*).

This species is closely allied to *G. semiflava*, but is much smaller, with the exception of the tail, which hardly differs in length from that of the allied species. The black forehead does not extend so far back as in *G. semiflava*. There is no species at all like this in Mexico, the differences separating it from *G. melanops* and *G. speciosa* being very obvious.

CHLOROSPINGUS ALBIFRONS, sp. n.

Supra olivacea, capite summo unicolore brunneo; loris et macula suboculari nigris; fronte stricte et lunula postoculari albis; alis et cauda fusco-nigricantibus extrorsum olivaceo limbatis: subtus gula cervina; pectore ochraceo; abdomine medio pallide griseo; hypochondriis et crisso olivaceis; rostro nigro, pedibus plumbeis: long. tota 5·5, alæ 2·9, caudæ 2·5, rostri a rictu ·65, tarsi ·65.

Hab. Mexico, Omilteme in Sierra Madre del Sur, altitude 8000 feet (*Mrs. H. H. Smith*).

Mrs. Smith's collection contains several specimens of this interesting species, all obtained in the high range called the Sierra Madre del Sur, in the Mexican State of Guerrero. Its nearest ally is *C. albitemporalis* of Costa Rica and the Andes, but it differs in having a narrow row of white frontal feathers, in the less extent of the postocular white spot, and in its more ochraceous chest. From *C. ophthalmicus*, which takes its place in the eastern highlands of Mexico, it differs in many respects, such as the paler colour of its head, the

less amount of white behind the eye, the fawn-coloured throat, and the ochraceous chest.

The young birds, of which there are two in the collection, have the head of nearly the same colour as the back, and the marks round and below the eye are not nearly so well defined.

PITYLUS CELÆNO.

Deppe's specimens of this species were obtained at Papantla, and this was the only record (Biol. C.-A., Aves, i. p. 332, pl. 24) we could find of its exact habitat. Godman secured examples of both sexes near Misantla, and Richardson's collection contained many specimens both from Tampico and the eastern Sierra Madre above Ciudad Victoria, between which place and Montemorelos Armstrong also found it, so that its northern range probably extends to the extreme limits of the forest-clad slopes of this mountain range.

AMPHISPIZA QUINQUESTRIATA.

This beautiful species was hitherto only known to us from a single specimen said to have been obtained in Mexico, but the precise locality of which had not been recorded. Mr. Lloyd has recently sent us a single female specimen from Nuri in Sonora, shot on 22nd April, 1888.

PEUCÆA CASSINI.

When writing on this bird (*tom. cit.* p. 391) we were not able to speak positively of its occurrence south of the Rio Grande, but we now have a good series of examples from the frontier States of Nuevo Leon and Tamaulipas.

PEUCÆA MEGARHYNCHA, sp. n.

Supra brunnea; plumis omnibus medialiter rufescentibus, rachidibus nigris; capite summo castaneo medialiter griseo intermixto; loris albis; capitis lateribus griseis: subtus albida, hypochondriis et crisso pallide brunneis; stria utrinque mystacali nigra; rostro nigricanti-plumbeo, pedibus carneis: long. tota 6·0, alæ 2·5, caudæ 2·5, rostri a rictu 0·65, tarsi 0·85.

Hab. Mexico, Santa Ana in Sonora (*W. Lloyd*).

Obs. *P. boucardi* proxima et affinis, sed rostro multo majore et colore suo plumbeo facile distinguenda.

Mr. Lloyd has sent us a single female specimen of this *Peucea*, which seems certainly distinguishable from any of the allied forms of which *P. boucardi* and *P. ruficeps* are representatives. Though its size is not greater than that of *P. boucardi*, the bill recalls that of some species of *Hæmophila*. The colour of the bill is probably due to season, the type specimen having been shot April 18th, 1888; this can only be ascertained on receipt of further specimens.

HÆMOPHILA ACUMINATA.

Mrs. Smith's collection contains numerous specimens of this little-known species, all of them shot at various places on the Sierra Madre del Sur in the State of Guerrero, where also the equally rare

HÆMOPHILA HUMERALIS
occurs abundantly.

HÆMOPHILA SUPERCILIOSA
proves to be an exceedingly common species in the environs of Mexico, and also near Puebla to the southward, and on Popocatepetl up to an elevation of from 10,000 to 12,000 feet; it also occurs on the Cofre de Perote, where it breeds and whence we have young birds in first plumage shot in July. It is likewise found in the States of San Luis Potosi and Aguas Calientes, and has also been recorded from the State of Durango.

RHYNCOPHANES MACCOWNI.

We were unable (*tom. cit.* p. 420) to record this species from Mexico with certainty; we now know of its occurrence well within our border, as Mr. Lloyd obtained specimens at Julines near the city of Chihuahua.

DELATTRIA MARGARITÆ, sp. n.

D. henrici affinis, sed gutture violaceo (nec rosaceo) facile distinguenda.

Hab. Mexico, Omilteme in Sierra Madre del Sur, alt. 8000 feet (*Mrs. H. H. Smith*).

Mrs. Smith's collection contained several specimens of this *Delattria*, which is probably confined in its range to the

mountain chain called the Sierra Madre del Sur, which runs nearly parallel to the Pacific, being separated from the main cordillera by the Mescala valley, and attains an altitude of from 9000 to 10,000 feet. The species is clearly distinct from the well-known *Delattria henrici*, which is not uncommon in Guatemala and also occupies some of the higher ranges of Mexico on the eastern side.

We have named this species after Mrs. Herbert Smith, whose energy has added much to our knowledge of the distribution of Mexican birds.

IACHE NITIDA, sp. n.

- ♂. Supra nitenti-viridis, capite summo nitenti-cyaneo, cauda chalybeo-cyanea, rectricibus intermediis late fusco terminatis: subtus læte cyanea; abdomine viridi tincto; rostro carneo, apice nigricante: long. tota 3·3, alæ 2·0, caudæ rectr. med. 0·8, rectr. lat. 1·3, rostri a rictu 0·85.
- ♀. Supra viridis, subtus fusca, pectore et hypochondriis viridi lavatis; caudæ dimidio basali viridi, dimidio apicali chalybeo-cyaneo, rectricibus duabus utrinque externis albo terminatis; rostro nigricante, mandibula (præter apicem) carnea.

Hab. Mexico, Acapulco, Rio Papagaio, State of Guerrero (*Mrs. H. H. Smith*).

This beautiful species is most nearly allied to *I. doubledayi*, but the whole throat and breast are of a richer blue, and the head also is shining blue, not green. The specimen of *I. doubledayi* with which we have compared it is stated to be from Chinantla, and is that figured in Gould's 'Monograph of the Humming-Birds.'

Mrs. Smith's collection contains several specimens of this Humming-bird, all of which were obtained between Acapulco and the foot of the Sierra Madre del Sur in the State of Guerrero.

AULACORHAMPHUS PAVONINUS.

Pteroglossus pavoninus, Gould, P. Z. S. 1835, p. 158; id. Mon. Rhamph. ed. 1, t. 30.

Pteroglossus wagleri, Sturm, J. Gould's Monogr. d. Rhamph. Heft 2, t. 6 (1841).

Aulacorhamphus wagleri, Gould, Mon. Rhamph. ed. 2, pl. 48; Sclater, P. Z. S. 1859, p. 384.

Of this rare species the type-specimen in the Munich Museum for many years was the only one known; but in 1858, M. Boucard obtained an example at Sacatepec in the Mexican State of Oaxaca; and we now find another in Mrs. Smith's collection which was shot at Amula, a village in the State of Guerrero, at an elevation of about 6000 feet above the sea, in the Sierra Madre del Sur. The species is very closely allied to *A. prasinus*, but may at once be distinguished by having the base of the maxilla black, with the exception of the yellow line which separates it from the naked orbit. We also notice that the frontal feathers in *A. pavoninus* are yellowish at the base, a feature not seen in the allied species.

There can be no doubt that *A. pavoninus* is the right name to use for this bird, notwithstanding Sturm's statement as to its application by Wagler in the Munich Museum.

CHRYSOTIS VIRIDIGENALIS.

Chrysotis viridigenalis, Cassin, Proc. Ac. Sc. Phil. 1853, p. 371; Journ. Ac. Phil. iii. p. 153, pl. 13; Souancé, Icon. Perr. pl. 31 (lower figure).

Chrysotis coccineifrons, Finsch, Papag. ii. p. 540 (partim).

The origin of *C. viridigenalis* of Cassin has always been a matter of doubt, and till recently a menagerie specimen in the possession of Mr. Sclater, said to have come from Colombia, was the only one we had seen answering to the figure. It now turns out that the bird is not at all uncommon in eastern Mexico from Misantla northward to the limit of the forest districts. Godman obtained several specimens at Misantla during his recent expedition, and both Richardson and Armstrong procured numerous examples, the most northern point recorded being Montemorelos, in lat. 25° 15' N., on the Eastern Sierra Madre.

Besides *C. viridigenalis*, the following Parrots are found in this region, namely, *C. autumnalis*, *C. levaillanti*, *Ara militaris*, *Conurus holochlorus* and *C. aztec*. None of these reach the banks of the Rio Grande, and the limits of their

northern distribution may be almost said to define the boundary between the Nearctic and Neotropical Regions. On the western side of Mexico the Psittacidæ are represented by *Chrysotis finschi*, *C. albifrons*, and *Psittacula cyanopyga*. These all extend along the western flank of the mountains at least as far as Alamos in Sonora, and in like manner may be said to define the regional boundary on that side of Mexico. So far as the central country is concerned, if we except *Rhynchopsitta pachyrhyncha*, which is probably only found on the Western Sierra Madre, Parrots do not occur nearly so far north. The northern distribution of Parrots, thus sketched out, is practically that also of the Trogonidæ, *Trogon ambiguus* having a northern extension on either side of the mountains precisely like that of the Parrots just mentioned. It is the same on the eastern side with the Momotidæ, *Momotus cæruleiceps* being found at least as far north as Montemorelos, in Nuevo Leon. It is the termination, too, of the Tinamidæ, and also of the Cracidæ, with the exception of *Ortalis vetula* sive *maccalli*, which goes a little farther north and crosses the Rio Grande into Texas. Of Passeres the same boundary limits *Pachyrhamphus* on both sides and *Pitylus celæno* on the east. From this it will be seen that the line of demarcation between the two regions, so far as the birds are concerned, is capable of being defined with some precision, and will be found to coincide with the northern limits of the forests. These on the eastern side leave the coast a little north of Tampico, and continue in a narrow belt along the eastern flank of the mountains in a nearly northern direction almost to Monterey. On the western side a similar state of things is found, and we meet with a number of southern forms extending along the western slope of the mountains as far as Alamos.

CYRTONYX SALLÆI.

Cyrtonyx sallæi, J. Verr. in Thompson's Arc. Nat. p. 35, pl. 4.

This species was fully described by Jules Verreaux; but up to the present time we have not been able to discover the

precise part of Mexico where it is found, and our ignorance on this point has led to some doubts as to the validity of the species. Mrs. Smith's collection contains a male example, which was shot in August, 1888, at Amula in the State of Guerrero, at an altitude of 6000 feet above the sea. Its distinctness both from *C. massena* and from *C. ocellatus* is quite obvious, and is fully discussed in Verreaux's paper. We are still unacquainted with *C. sumichrasti* of Lawrence from Tehuantepec, which seems to be distinct from all the above-mentioned species.

XXIII.—Notices of recent Ornithological Publications.

49. Buller's '*Birds of New Zealand*.'

[A History of the Birds of New Zealand. By Sir Walter Lowry Buller. Parts VII.—XI. 1888. Folio. London.]

Since we last noticed this important work Parts VII. to XI. have been published, and the whole will probably be complete before this number of '*The Ibis*' is issued. Part VII. finished the first volume and contains the title-page, preface, and introduction. Parts VIII., IX., and X. commence the second volume and contain illustrations of the following species :—

Charadrius obscurus, *C. bicinctus*, *Thinornis novæ zealandiæ*, *Anarhynchus frontalis*, *Recurvirostra novæ hollandiæ*, *Himantopus leucocephalus*, *H. novæ zealandiæ*, *Gallinago pusilla*, *Limosa novæ zealandiæ*, *Larus bulleri*, *L. scopulinus*, *Sterna frontalis*, *S. antarctica*, *Porphyrio melanonotus* and a variety, *Notornis mantelli*, *Rallus philippensis*, *Ortygometra tabuensis*, *Ocydromus greyi*, *O. fuscus*, *O. australis*, *O. brachypterus*, *Ardea egretta*, *A. sacra*, *Botaurus pæciloptilus*, *Phalacrocorax varius*, *P. imperialis*, *P. punctatus*, *P. featherstoni*, and *Diomedea exulans*.

The Introduction is very copious and well worthy of careful study. The extraordinary extinct avifauna of New Zealand is first discussed. Quoting the late Judge Maning, the author states that "the Moas still existed in considerable

numbers when the first Maori immigrants arrived, from 500 to 600 years ago." "They were destroyed wholesale by setting the grass and scrub on fire, the Maoris killing in this manner vast numbers more than they could use." As regards the existing avifauna, the peculiarities of the Carinatae are thus summarized :—

"Out of a total of 88 genera, 47 belong to the Limicolæ, Herodiones, and the five web-footed Orders, and these, being in a sense cosmopolitan, may for the present be put out of sight. Of the remaining 41 genera, 21 are strictly peculiar to New Zealand. But even in the other more widely-spread genera there are many species that are not known elsewhere. Thus, out of a total of 181 species, comprising the present list of our Carinatae, no less than 93 are strictly endemic. Even among the most diffuse Orders there are genera restricted in their range to New-Zealand rivers or coasts, or to the out-lying islands. Thus among the Limicolæ we have two strictly peculiar genera, *Thinornis* and *Anarhynchus*, and among the Anseres two more, namely, *Hymenolæmus* and *Nesonetta*."

Good work deserves to be well supported ; and in the present instance it would seem to have met with its merits, the whole edition of 1000 copies being, if we understand it rightly, nearly disposed of. Few bird-books, we believe, have ever met with similar success.

50. *Buller on Mr. S. W. Silver's Collection of New-Zealand Birds.*

[A Classified List of Mr. S. William Silver's Collection of New-Zealand Birds (at the Manor-House, Letcomb Regis), with short Descriptive Notes by Sir Walter L. Buller, K.C.M.G., D.Sc., F.R.S. 8vo. London: 1888.]

This is a classified list of the stuffed specimens of New-Zealand birds contained in Mr. S. William Silver's private collection at Manor-House, Letcomb Regis. The collection, which is one of the most complete in Europe, was exhibited in the New-Zealand Court of the Colonial and Indian Exhibition, where many of us will well recollect seeing it.

Short explanatory notes are given under the head of each

species, and a number of woodcuts from the 'Birds of New Zealand' are reproduced.

51. *Büttikofer on Birds from the Congo and S.W. Africa.*

[On Birds from the Congo and South-Western Africa. By J. Büttikofer. *Notes Leyden Mus.* x. p. 209.]

The author gives an account of about 300 specimens of birds made by Mr. P. J. van der Kellen in the region of the Upper Cuneni river, and east of it in the valleys of the Okavango and Umbella rivers. During a short stay on the Lower Congo the same collector procured examples of 13 species, of which a separate list is given. Mr. van der Kellen's headquarters were at Humpata, the colony of the Trek-Boers. *Neocichla kelleni*, from the Umbella river, and *Plocepasser rufo-scapulatus*, from the Kasinga river, are described and figured as new.

52. *Chapman's 'Bird-life of the Borders.'*

[Bird-life of the Borders; Records of Wild Sport and Natural History on Moorland and Sea. By Abel Chapman. London, 1889: Gurney & Jackson.]

Our brother-member, Mr. Abel Chapman, whose "Contributions to the Ornithology of Spain" (*Ibis*, 1884, pp. 66 *et seqq.*, 1888, pp. 444 *et seqq.*) all our readers will recollect with pleasure, has in this volume collected a number of his fugitive papers, which have appeared from time to time as newspaper articles, and has embellished it with more than fifty "rough pen-and-ink drawings" by himself, reproduced by photo-zincography, and "intended to serve as character-sketches rather than as portraits," but having, he tells us, "no pretensions either to scientific accuracy or artistic merit." As to the last quality we do not profess to give an opinion, but the sketches are nearly all spirited and convey the idea of life in a way that the professional artist often fails to do—one only (that on page 170) can we call bad, but most of them have great merit. As to the text, it is written rather from the sportsman's than from the naturalist's point of view; but it is

extremely readable, and may undeniably be consulted with profit by ornithologists—for instance, the remarks (pp. 7–16) on migration. But herein we venture to demur to one, at least, of the author's suppositions. He seems to think that all the individual birds of every species slide, so to speak, in regular order from south to north, and from north to south, according to the particular station that each individual keeps. This may be the case with some species; but observations, though confessedly imperfect, are not wanting to show that in other species the individuals which winter the furthest to the south are those which have their breeding-place furthest to the north, and thus the subject is far more complex than would appear from the simple diagram which the author gives us (p. 9) in illustration of his views. However, every contribution to this puzzling question helps to elucidate it, and, if on that account only, we are thankful to Mr. Abel Chapman for his book.

53. *Dixon on our Rarer Birds.*

[Our Rarer Birds: being Studies in Ornithology and Oology. By Charles Dixon. Pp. 373. 8vo. London: 1888.]

There seems to be no limit to the demand for popular books on natural history, and Mr. Dixon's volume on our rarer birds, of which he has kindly sent us a copy, will, no doubt, meet with a good reception. The title, however, is a little misleading, as it cannot be said in strictness that such species as the Nuthatch, Green Woodpecker, Stock Dove, and Heron, and many others descanted upon in this work have any claim to be considered as rarer birds. The wood-cut illustrations in this volume are mostly well drawn and very pretty. As regards the reproduction of the lithographic frontispiece, representing the St. Kilda Wren, which is the same as that given in 'The Ibis,' 1885, pl. iii., there has, we observe, been a somewhat acrimonious controversy in the 'Athenæum.' This would have been avoided if Mr. Dixon had stated that he obtained his authority, not from the Secretary of the Zoological Society of London, who had nothing whatever to do with the matter, but from one of the former joint Editors of this Journal.

54. Gould's 'Birds of New Guinea.'

[The Birds of New Guinea and the adjacent Papuan Islands, including any new Species that may be discovered in Australia. By [the late] John Gould, F.R.S. &c. Part XXV. Folio. London: 1888.]

With this twenty-fifth part the great work of Gould upon the birds of New Guinea is brought to a conclusion. Bound up it makes five fine folio volumes, with 320 plates. It seems rather a pity to stop the work when, as we are told in the preface, only some 300 species have been figured out of a total of 1030 belonging to the Papuan Avifauna; but we suppose the publishers had no choice except to adhere to the promise made to the subscribers to finish the book in twenty-five parts. Of these only twelve were issued during Gould's lifetime, the remaining thirteen having been prepared by Mr. R. B. Sharpe, who has also written the preface and introduction. Part XXV. contains figures of the following species:—

Harpyopsis novæ guineæ.

Baza gurneyi.

Lorius tibialis.

Nesocentor milo.

Rectes aruensis.

Ianthœnas albigularis.

Carpophaga subflavescens.

— *van-wycki.*

Piezorhynchus axillaris.

— *medius.*

55. Littleboy on the Birds of Hertfordshire.

[Notes on Birds observed in Hertfordshire in 1887, and on the Birds frequenting the Tring Reservoirs. By [the late] John E. Littleboy. Trans. Hertf. N. H. Soc. & Field Club, v. p. 76.]

This, we regret to observe, is the last report on Hertfordshire birds we shall have from a very active and intelligent observer. Mr. Littleboy's paper was read in March last, but he died on the 3rd of August following, before the proof was corrected. Amongst the 21 species new to the Hertfordshire list are *Acrocephalus palustris*, *Anthus spinoletta*, and *Calandrella brachydactyla*. But a still greater rarity is the Marsh Sandpiper (*Totanus stagnatilis*), an example of which is stated to have been shot near the Tring Reservoirs by Mr. Walter Rothschild in October 1887, and to have been taken at first for an "immature or winter-plumaged Greenshank." As the

Marsh Sandpiper has not yet been recognized as a British bird, although occasionally met with in Northern France, it is very desirable that this specimen should be carefully examined by a competent authority, and its authenticity placed beyond doubt.

56. Meyer on Pallas's Sand-Grouse in Bulgaria.

[Ueber das Vorkommen des Steppenhuhnes in Bulgarien. Von A. B. Meyer. Hugo's Jagd-Zeitung, Jahrg. 31, no. 23, p. 685.]

Dr. Meyer, being persuaded that Pallas's Sand-Grouse ought to have crossed Bulgaria on its way to Western Europe, has endeavoured to extract some evidence from King Ferdinand on the subject. The royal reply does not seem to us to be very convincing on the question, in fact, rather to prove a negative. But Dr. Meyer appears satisfied to deduce from it the conclusion that the Sand-Grouse *was* met with in Bulgaria in March 1888 near Sophia.

57. Nelson on the Birds of Alaska.

[Report on the Natural-History Collections made in Alaska between the years 1877 and 1881 by Edward W. Nelson. Edited by Henry W. Henshaw. With 21 plates. Washington: 1887.]

In our last number we noticed Mr. Turner's work on the birds of Alaska (*suprà*, p. 133). We have now a still more important volume of the same series of publications (Arctic Series of Publications issued in connexion with the Signal Service, U. S. A.) before us. Mr. Nelson was more than four years in Alaska, his headquarters having been at St. Michael's, whence, however, various expeditions were made along the coast and up the Yukon valley. Mr. Nelson also accompanied the U.S. s.s. 'Corwin' during her voyage through Bering's Straits in search of the 'Jeanette' in 1887, and is one of the few naturalists who have landed in Wrangel and Herald Islands. Of this excursion and the birds there met with he has already given us an excellent account (see *Ibis*, 1884, p. 105). We have now a capital memoir from the same pen on Alaskan ornithology, which, however, we regret to say, on account of the failure of the author's health, has been edited by Mr. Henshaw.

The collection amassed by Mr. Nelson during his sojourn in Alaska "amounted to over two thousand birdskins and fifteen hundred eggs." But all the other available materials in the Smithsonian Collections have been utilized for the present work, which is believed to embody "all of importance that is known concerning the birds of Alaska," except that the portion relating to the swimming-birds subsequent to the Anatidæ has been, "from unavoidable causes, curtailed."

Alaska, although it looks small on most maps, is of enormous size, the land-area within its limits being computed to embrace more than 580,000 geographical square miles. As regards its animal life, Mr. Nelson divides it into four "Faunal Districts":—(1) the Sitkan district, along the west coast, washed by the comparatively warm water of the Japanese current, clothed with forests of conifers, and backed by the coast-range of St. Elias and its adjacent giants; (2) the Aleutian Islands, destitute of trees, but covered with grass and ferns, where sea-fowl predominate; (3) the Alaskan Arctic district, a treeless coast-belt, which extends from the peninsula of Alaska through Bering's Straits, along the Arctic shore to the mouth of the Mackenzie River, with a mean annual temperature of only 25°; and (4) the Alasko-Canadian district, which is "coincident with the distribution of timber on the Alaskan mainland north of the coast-range. Full details are given of the physical characters of these districts and of their peculiarities in ornithic life.

Twenty Old-World species of birds are now known to occur in Alaska, namely:—

- | | |
|------------------------------------------|-------------------------------------------|
| 1. <i>Cyanecula suecica</i> . | 11. <i>Ægialitis mongola</i> . |
| 2. <i>Saxicola œnanthe</i> . | 12. <i>Charadrius dominicus fulvus</i> . |
| 3. <i>Phyllopseustes borealis</i> . | 13. <i>Limosa baueri</i> . |
| 4. <i>Parus cinctus obtectus</i> . | 14. <i>Tringa acuminata</i> . |
| 5. <i>Budytes flavus leucostriatus</i> . | 15. <i>Eurynorhynchus pygmæus</i> . |
| 6. <i>Anthus cervinus</i> . | 16. <i>Tringa ferruginea</i> . |
| 7. <i>Pyrrhula cassini</i> . | 17. <i>Anas penelope</i> . |
| 8. <i>Ulula cinerea lapponica</i> . | 18. <i>Oidemia fusca</i> . |
| 9. <i>Surnia ulula</i> . | 19. <i>Larus schistisagus</i> . |
| 10. <i>Archibuteo lagopus</i> . | 20. <i>Fulmarus glacialis glupischa</i> . |

Eleven species and subspecies are, so far as is yet known, believed to be peculiar to Alaska, of which six are Passeres (*Parus atricapillus turneri*, *Troglodytes alascensis*, *Leucosticte griseonucha*, *Plectrophenax hyperboreus*, *Melospiza cinerea*, and *Perisoreus canadensis fumifrons*), two are local forms of Ptarmigan (*Lagopus rupestris nelsoni* and *L. r. atkensis*), and the three others are respectively a Sandpiper, a Tern, and a Petrel (*Tringa ptilocnemis*, *Sterna aleutica*, and *Æstrelata fischeri*). The Sandpiper, which visits the Fur-seal Islands in summer for breeding-purposes, will doubtless turn up elsewhere; the Petrel, based on a single specimen we believe, requires further examination.

The main portion of the work which follows the introduction consists of nearly 200 pages, and gives copious and excellent notes on all the known species of Alaskan birds, in the systematic order of the A. O. U. Check-list. Counting subspecies, they appear to be 260 in number, of which 78 are Passeres, showing how greatly this group, which in tropical and temperate regions generally makes up more than half the avifauna, falls off in numbers in the extreme north. Twelve coloured plates illustrate the work, amongst which we may call special attention to that of the Pectoral Sandpiper, showing the extraordinary way in which the male bird inflates its throat in the love-season, and that of *Numenius tahitiensis*, a third species of Curlew, which has now occurred twice in Arctic America.

We have already (*suprà*, p. 143) given the results of the author's observations upon *Falco gyrfalco*. It is surprising to find that the Great Belted Kingfisher (*Ceryle alcyon*) goes as far north as Norton Sound and the Arctic Ocean shores, where specimens were obtained from the district between the Mackenzie and Anderson Rivers.

A useful Bibliography of Alaskan ornithology concludes this valuable memoir.

58. *Pleske's Revision of the Ornis of Turkestan.*

[Revision der Turkestanischen Ornis. Nach Sammlungen des verstorbenen Conservators Valerian Russow, verfasst von Theodor Pleske. Mém. l'Acad. Imp. Sci. St. Pétersb. sér. 7, xxxvi. no. 3, 1888].

The late Valerian Russow, one of the most active and intelligent collectors of modern days, accumulated a splendid series of birds during the eight months that he passed in Turkestan in 1878*. These have been now worked out by Herr Theodor Pleske, and form the principal material used in the preparation of the very useful memoir now before us. Russow's headquarters during his sojourn in Turkestan was at Tschinas, or Chinas, on the Jaxartes ; but excursions were made to the Iskander-Kul and other places, and Samarcand was visited on the route home. The result of his exertions was a collection of 800 skins of birds, besides eggs and nests in great quantity.

The known birds of Russian Turkestan, according to Herr Pleske's list, are 419 in number. We observe that *Bubo turcomanus* (usually regarded as a subspecies of *B. maximus*) is declared to be quite distinct and more nearly allied in structure to *B. ascalaphus* and *B. bengalensis*. Other noteworthy species in the Turkestan list are *Emberiza stewarti*, *Phylloscopus pseudo-borealis*, and *Myiophoneus temmincki*.

59. Ridgway on new American Hawks.

[Description of a new Western Subspecies of *Accipiter velox* (Wils.) and Subspecific Diagnosis of *A. cooperi mexicanus* (Swains.). By R. Ridgway. Proc. U.S. Nat. Mus. 1888, p. 92.]

Subspecific characters are given of *Accipiter velox rufilatus* from Western North America, and *A. cooperi mexicanus* from Western U. S. and Mexico.

60. Ridgway on *Œstrelata sandwichensis*.

[Note on *Œstrelata sandwichensis*, Ridgw. By Robert Ridgway. Proc. U.S. Nat. Mus. 1888, p. 104.]

The type specimen of this species has been sent to Mr. Salvin for comparison, and is pronounced to be = *Œ. phæopygia*, Salvad., as Mr. Ridgway had already anticipated.

* Cf. Ibis, 1879, p. 384.

61. *Shufeldt on the Osteology of Arctic and Sub-Arctic Water-birds.*

[Contributions to the Comparative Osteology of Arctic and Sub-Arctic Water-Birds. Part I. By R. W. Shufeldt, M.D., C.M.Z.S. Plates I.- V. Journ. Anat. and Physiology, xxiii. p. 1 (1888).]

Dr. Shufeldt's observations and excellent illustrations in the present memoir are based upon a very extensive collection of skeletons of Arctic waterfowl placed under his charge for description by Prof. Baird, to which have been added materials from other quarters. The skeleton of *Alca torda* is described at full length, and comparative notes on *Alca impennis* are added. The plates refer also to other species that will be subsequently described.

62. *Shufeldt on Gallus bankiva.*

[Observations upon the Morphology of *Gallus bankiva* of India. (Including a Complete Account of its Skeleton.) By R. W. Shufeldt, M.D., C.M.Z.S. Journ. Comp. Med. and Surgery, Oct. 1888.]

Dr. Shufeldt describes the anatomy and osteology of a pair of the Wild Jungle-fowl of India (*Gallus bankiva*)—the supposed origin of our domestic Fowl—with the idea that, as suggested by Forbes, it may serve as a standard of comparison of the various races of the domestic birds that have descended from it. Good illustrative woodcuts are given.

63. *Stejneger on the European Marsh-Tits.*

[Notes on European Marsh-Tits, with Description of a new Subspecies from Norway. By L. Stejneger. Pr. U.S. Nat. Mus. 1888, p. 71.]

Mr. Stejneger maintains that the so-called *Parus borealis* of the Alps is quite different from the true *P. borealis* of Scandinavia, and should be called *P. montanus*, having been so named by Baldenstein in 1822. "In Northern Europe the true *P. borealis* occurs; in Central Europe the large and more brown-headed *P. montanus*; their habitats are widely separated and isolated. On the other hand, *P. palustris* occurs all over Europe (except in Great Britain, where it is represented by *P. palustris dresseri*), breeding even in the same localities as *P. borealis* and *P. montanus*." Moreover

the author recognizes a third form of Marsh-Tit in the Scandinavian peninsula—*Parus colletti*—a “subspecies of the *borealis* group,” and points out its distinctive characters. What does Mr. Collett say to this notable discovery? We should be glad to have his opinion on his namesake.

64. *Stejneger on the Hawaiian Avifauna.*

[Further Contributions to the Hawaiian Avifauna. By Leonhard Stejneger. Proc. U.S. Nat. Mus. 1888, p. 93.]

Mr. Stejneger's article is based on a new collection lately received from Mr. Valdemer Knudsen, made in the island of Kauai and the adjacent small island of Niihau. It contains representatives of 11 species, of which one (*Puffinus knudseni*) is described as new. A new generic term, *Thyellodromas*, is made for the subgenus to which this Shearwater belongs, the term “*Thyellus*, Glover,” usually applied to it, being strictly only a synonym of *Puffinus*. Two more specimens of the lately described *Himantopus knudseni* (Stejn. Pr. U.S. Nat. Mus. 1887, p. 81) are in the collection, and serve to confirm the species. A full account is given of *Anas wyvilliana*, Scl. (Zool. Voy. Chall. vii. p. 98, t. xxii.), of which four specimens were in the collection, and show remarkable individual variations. The species is stated to be most nearly related to *Anas aberti*, of N.W. Mexico, and not to *A. superciliosa*.

65. *Stejneger on the European Crested Titmice.*

[Notes on the European Crested Titmice. By L. Stejneger. Proc. U.S. Nat. Mus. 1888, p. 113.]

Mr. Stejneger's comparison of three Scandinavian examples of *Parus cristatus* with a series from Central Europe has brought him to the conclusion that they belong to two distinct forms. “The former are greyer above, the latter more brownish, but the exact shade is very difficult to describe.” He proposes therefore to restrict the name *Parus cristatus* to the Scandinavian bird, and to call the other *Parus mitratus*, a name applied by Brehm to one of his subspecies. “It would be very interesting to know,” he continues, “whether the Crested Titmouse of Scotland belongs to either

of these two forms, or shows any peculiarity of its own, entitling it to separate recognition. British ornithologists not prejudiced against possibilities of this kind ought to look into the matter." Perhaps some of our brother members of the B. O. U. will give us their opinion upon this weighty question, if they are able to recognize the alleged differences between *P. cristatus* and *P. mitratus*.

66. *Trumbull on North-American Game Birds.*

[Names and Portraits of Birds which interest Gunners, with Descriptions in Language understood of the People. By Gurdon Trumbull. 8vo. New York: 1888.]

This will, no doubt, be a useful book for the class of persons for whom it is intended, which in the United States is numerous. The species included are those of the eastern half of the States; the scientific titles are those of the American Check-list. The illustrations printed in the letter-press are sufficiently characteristic to be of great assistance in identifying the species. The popular and local names are very fully given.

67. *Tschusi zu Schmidhoffen on Additions to the Ornis Austro-Hungarica.*

[Neue Arten und Formen der Ornis Austro-Hungarica, mit genauen Nachweisen und kritischen Bemerkungen. Von Victor, Ritter von Tschusi zu Schmidhoffen. Mitth. d. Orn. Ver. in Wien, 1888.]

The author, well known for his active interest in European ornithology, chronicles the recent additions to the ornis of the Austro-Hungarian Empire, as a supplement to his and E. F. von Homeyer's 'Verzeichniss der bisher in Oesterreich und Ungarn beobachteten Vögel,' issued in 1886. Eleven species or subspecies are spoken of, amongst which is the curious Pelican obtained on the Danube in 1887, and referred by Herr Dr. Stef. Baron v. Washington (Ann. d. k. k. natu-hist. Hofmus. iii. p. 62) to *Pelecanus sharpii*. But we have some doubts whether the so-called *P. sharpii* (cf. P. Z. S. 1871, p. 632) is, after all, anything more than *P. onocrotalus* in abnormal colouring.

68. *Zoological Record*, 1887.

[The *Zoological Record* for 1887, being Volume the Twenty-fourth of the *Record of Zoological Literature*. Edited by Frank E. Beddard, M.A., F.Z.S. 8vo. London: 1888.]

Mr. A. H. Evans deserves, in our opinion, very great credit for his article "Aves" in the '*Zoological Record*' for 1887. To expect that such a laborious and complicated piece of work can be entirely free from errors is ridiculous. If, therefore, we point out a few slips in the 76 pages of this most useful publication, it is not from any wish to find fault with it, but with the hope of assisting our brother ornithologists who may use it, and of inducing the author to make it more nearly correct in future.

With the general classification used in the *Record* we cannot naturally do otherwise than agree; but we cannot understand why the *Oligomyodæ* should be placed first, when they are undoubtedly intermediate between the *Oscines* and the *Picariæ*. Nor can we approve of the alphabetical series of families adopted in the *Oscines*, which must cause many difficulties to workers, the most nearly allied groups being thus placed far asunder. It would be better to adopt at once the arrangement of the '*British Museum Catalogue of Birds*,' which is, at all events, something definite to refer to.

The following is a list of some of the *errata* and *emendanda* which we have noticed:—

P. 5. "*Certhilauda duponti*, n. subsp.," should be "*C. duponti lusitanica*, n. subsp." See p. 42.

P. 6. "*Haliastur*" *vocifer* should be "*Haliaetus*." This is Mr. Bowker's error, but should have been corrected.

P. 45. *Chlorura* belongs to the *Ploceidæ*, not to the *Fringillidæ*.

P. 50. *Melilestes* belongs to the *Meliphagidæ*, not to the *Nectariniidæ*.

P. 54. *Podoces* should, in our opinion, go rather with the *Corvidæ* than the *Sturnidæ*.

P. 54. The *Sylviidæ* have now become rather a refuge for the destitute. Can *Accentor*, *Cryptolopha*, and *Thalarrheus* in any wise be held to belong to it?

P. 61. *Micropus melanoleucus* from Sumatra is a Pycnotine bird. See Sharpe, Cat. B. vi. p. 64. *Micropus melanoleucus* of Shufeldt is a Swift, more correctly to be called *Cypselus melanoleucus*. Our American friends are responsible for this error, which has been caused by their unwarrantable resuscitation of *Micropus* instead of *Cypselus*.

P. 66. The family Plataleidæ cannot be properly maintained as distinct from the Ibididæ.

XXIV.—*Letters, Extracts, Notices, &c.*

WE have received the following letters addressed to the Editor of 'The Ibis':—

Northrepps, January, 1889.

SIR,—I am desirous of offering a few remarks on some of the Raptorial birds referred to in the last number of 'The Ibis.'

In the Notes by Mr. Sharpe and Mr. Whitehead on birds collected by the latter gentleman in Northern Borneo, it is remarked, on p. 66, under the head of *Circus spilonotus*, that the series "seems to prove conclusively that the sexes are similar when they are fully adult."

In confirmation of this opinion, I may mention that Mr. F. W. Styan was so good as to show me a specimen from Foochow (one of a series recorded by him in 'The Ibis,' 1887, p. 231), which he assured me was a female by dissection, but which had assumed the grey plumage; a memorandum which I made at the time states that this specimen "was entirely in male plumage, except a slight mottling of brown interspersed with the grey on the back."

At p. 75 of the same paper Mr. Sharpe refers to a remarkable Falcon in the British Museum from the Lawas River as an example of "the dark richly-coloured Peregrine of the Sunda Islands," with reference to which I wish to observe that the Lawas-River specimen is, so far as my experience goes, quite unique; this very abnormally coloured Falcon was described in detail in 'The Ibis' for 1882, p. 303.

To 'The Ibis' for 1888, p. 145, on the authority of Professor

Menzbier, I contributed a note on the identity of *Scops obsoletus* of Cabanis with *Scops brucei* of Hume, and also on the priority of the latter name; I am glad to observe that Mr. Dresser, after an examination of Mr. Hume's specimens, confirms this identification at p. 91 of the present year's volume.

As reference is made at p. 123 of this volume to Mr. E. P. Ramsay's valuable 'Tabular list of Australian Birds,' I may take this opportunity of pointing out that, at p. 36, Mr. Ramsay speaks doubtfully as to the species of *Ninox* inhabiting Norfolk Island, having apparently overlooked the circumstance of two specimens of *Ninox maculata* from that island having been recorded by me in 'The Ibis' for 1885, p. 139.

Yours &c.,

J. H. GURNEY.

64 Hereford Road, Bayswater,
January 21, 1889.

SIR,—With reference to your Note in this month's 'Ibis,' stating that Darwin speaks of having seen Penguins at the mouth of the Rio de la Plata in July, I beg to say that during my recent trip in the 'Golden Fleece' I arrived at Monte Video on July 27th, 1886, and after a sojourn of some days proceeded up the river some 200 miles to Fray Bentos (Uruguay), returning to Monte Video on the 17th August. During this time I never saw a Penguin. But on looking over my diary, I find, under the date of August 18th, the day after we left Monte Video, before we passed Cape Corrientes, an entry "Penguins reported to have been seen."

I was always very careful to make a distinction between what I saw myself and what other people saw for me.

The first time I appear to have seen Penguins on this coast myself was at the mouth of the River Desire, much further south.

Yours &c.,

J. YOUNG.

Meuenden,
January 26, 1889.

SIR,—Regarding your query in the January 'Ibis,' I may

tell you that I possess the head, wing, and leg of a Penguin (*Spheniscus magellanicus*) which was found dead on the seashore in the province of Rio Grande do Sul, in the neighbourhood of Rio Grande, by my friend Dr. H. v. Jhering.

Yours &c.,

HANS V. BERLEPSCH.

United States National Museum,
Washington, January 24, 1889.

SIR,—Mr. W. R. Ogilvie-Grant, in the last number of 'The Ibis,' has contributed an exceedingly valuable paper on the species of the genus *Platalea*, which I have read with great interest and satisfaction. It was highly gratifying to find the questions which I put in my paper on the Japanese Herodiones answered so ably, and to learn that I had been, in the main, correct in my interpretation of *Platalea minor*. It is evident that the excellent material at the command of Mr. Ogilvie-Grant could not have fallen into better hands.

On page 33 Mr. Ogilvie-Grant, after some flattering words in regard to my work, says that his own investigations have on several points resulted in conclusions quite the opposite to those arrived at by me. It seems that one of these points is in regard to the bareness of the face of the young Spoonbills, the other being the question as to the distinctness of *P. leucorodia* and *P. major*. I believe this to be a misunderstanding, for, so far as I can see, our views are not at all opposite. I agree completely with Mr. Ogilvie-Grant, and I think he agrees with me.

It will be seen from what I have said, p. 277, *in fine* (U. S. Nat. Mus. x. 1887), that I regard the immature birds as having the naked space of face and throat more reduced than have the old birds. But in the sentence quoted by Mr. Ogilvie-Grant I do not speak of what I term the immature birds, or the young birds, but of "*the very youngest birds*" as compared with "the older ones;" and these, as Mr. Ogilvie-Grant, on the very same page, admits, have "nearly the whole face and throat naked." I wrote the sentence in question with special reference to a European specimen before

me, which, as the dimensions given by me on p. 281 show, is hardly more than half-grown (expos. culmen 97 mm.). This bird is out of the "downy" plumage, that is, the feathers are fully grown and their downy tips have been thrown away, but no additional feathers have as yet appeared on the denuded portions of the face and throat. I was therefore undoubtedly correct in my original statement. Now as to the application of it. From Bonaparte's and Schlegel's descriptions of the type of *P. minor* I was naturally led to believe the naked space in this specimen to be larger ("genarum parte plumosa marginem oculorum haud attingente") than in those examined by Swinhoe and by myself; and as the tarsus of the specimen in question was also given as extraordinarily short, the conclusion was logical, that the type was a very young bird like the European specimen just mentioned, though somewhat older on account of the longer bill. From the figure furnished by Dr. Büttikofer (as well as from the original in the 'Fauna Japonica,' which I am now able to consult) it is evident, however, that I was misled, and Mr. Ogilvie-Grant expressly says (p. 55) that there is "considerably less naked skin in it than in more mature birds." So much for the alleged "theory" of mine.

On p. 39 Mr. Ogilvie-Grant, in regard to the distinctness of *P. leucorodia* and *P. major*, says that he is inclined to share Mr. Seebohm's opinion rather than mine. But he certainly does not. Mr. Seebohm's opinion is, or was, when I wrote, as expressed by myself, that "*Platalea major* of Temminck is undoubtedly a young bird" of the European species, while my conclusions were exposed in the following guarded form (p. 278): "I therefore consider myself justified in regarding the Japanese form as separable." Whether "specifically distinct" or not, I have not ventured to say, and on this point I am still somewhat doubtful. But whether specifically or only subspecifically distinct, it is evident from Mr. Ogilvie-Grant's whole treatment of the subject (see pp. 34, 39-47) that he agrees with me that the two forms are separable.

Yours &c.,

LEONHARD STEJNEGER.

Croft House, Holywood, co. Down,
February 23rd, 1889.

SIR,—I wish to record in your pages a recent interesting ornithological occurrence in this country, that of a Snowy Owl (*Nyctea scandiaca*). The bird was shot near Dundrum, co. Down, on 21st January last, and was sent into Belfast the following day, when I had an opportunity of examining it in the flesh. It measured 4 feet 10 inches from tip to tip of the extended wings. It is an exceedingly handsome bird, the extent of the dark markings on its otherwise snow-white plumage being intermediate between the two figures in Dresser's plate, No. 310. It was started out of a clump of bushes between the rabbit-warren and the sea, and shot as it was sailing slowly away.

Yours &c.,

R. LLOYD PATTERSON.

Kilmory, Lochgilphead,
February 27, 1889.

SIR,—Mr. Harvie-Brown is perfectly correct in saying (above, p. 135) that at p. 492 of your October number there is a misprint. But unfortunately the correction he makes is equally wrong. The name I wrote was "Dr. John MacRury."

Mr. Harvie-Brown ought to know better than to call the "Monack," or Monck Islands, "Monarch." But very likely this is also a misprint?

Yours &c.,

JOHN CAMPBELL-ORDE.

Canary Islands, Tenerife, Puerto Orotava,
February 5th, 1889.

SIR,—It may possibly not be altogether without interest to British ornithologists to know that I was fortunate enough to discover the nest of *Fringilla teydea* during last summer in the south of this island. The nest, which contained two richly green-coloured eggs, was at the top of a *Pinus*

canariensis, on one of its lateral branches. I believe I am the first to find this valuable nest.

Yours &c.,

RAMON GOMEZ.

Blackgame in Newfoundland.—We extract from the 'Field' of Dec. 22nd, 1888, the following account of an attempt made by Mr. R. L. Mare, of St. John's, Newfoundland, to introduce blackgame into his adopted country.

"The first shipment of these birds arrived there from Scotland on October 21, 1886, and a second on December 3 following. In all something like twenty brace were sent, three birds only dying on the passage. They were conveyed by Mr. Mare to a suitable locality, about six miles in from 'the half-way house,' between Holyrood and Salmonier. The second lot were taken to a place a few miles nearer Salmonier. On being liberated they at once took wing, flying vigorously; and the Legislature passed a law to protect the new importation for five years. Since then accounts have been repeatedly received showing that the birds are thriving well and rapidly increasing in numbers. Already they are reported to have been seen in Bay St. George, so that they have actually made their way across the island in that short time. Some have also been seen at Trepassey, on the southern shore of the island.

"Prior to the date above mentioned, if we mistake not, only two species of Grouse were to be met with in Newfoundland, namely, the Willow Grouse (*Lagopus albus*), common in the lowlands, and the Rock Ptarmigan (*Lagopus rupestris*), an alpine species rarely found below the line of stunted black spruce, except in the depth of winter, when it descends to the lowlands and feeds sometimes in company with the Willow Grouse. Quite exceptionally a few Canada Grouse (*Tetrao canadensis*), locally known as 'spruce partridge,' have been known to find their way over from the mainland, and have now and then been shot; but we are not aware that they have obtained a permanent footing or bred in any part of Newfoundland. The Willow Grouse is by far the

commonest species, and is known locally as the 'ptarmigan,' although that name would be more properly applicable to the Alpine *Lagopus rupestris*."

'*Stray Feathers*.'—We welcome with pleasure the arrival in this country of a new part of '*Stray Feathers*' (vol. xi. nos. 1 to 4), containing a lengthy and valuable paper by Mr. Hume himself "On the Birds of Munipur, Sylhet, and Cachar," written in 1881, after his return from Munipur, and dated Dec. 1881. We hope Mr. Hume will not keep us long waiting for the remainder of the "Introduction," which contains a comparison of the avifauna of Sind and Munipur, and promises to be of a very interesting character.

A Pteroptochian from Costa Rica.—Mr. Ridgway writes to us of the discovery in the Volcano of Poas, Costa Rica, of a very remarkable new bird, which will apparently constitute a new genus of Pteroptochidæ. It comes near *Xenicus* in structure, but is very different in coloration. Mr. Ridgway will shortly describe it under the name *Zeledonia*.

Field-Notes on the Yang-tze.—Under this head Mr. F. W. Styan has contributed to the 'Field' a series of interesting observations on the birds and other animals met with during a voyage from Shanghai up the lower Yang-tze to Kiukiang in February and March last year (see 'Field' of Feb. 2nd, 9th, and 16th, 1889). On March 17th an excursion was made from the river-bank at Tunglin to the "Chin Teh hills, a fine range lying a short distance inland," and quarters were established in a temple "beautifully situated amongst groves of bamboos and firs, at an elevation of perhaps 2000 feet above the plain." The birds here met with are described as follows:—

"Birds were well represented here. A pair of Eagles frequented the highest range, and most likely had a nest among the crags. Several Indian Buzzard-Hawks (*Butastur indicus*) arrived one day, evidently on migration. A beautiful little Bare-toed Scops Owl (*Scops elegans*) came every night

and hooted around the temple, till at last, after much patience, I succeeded in getting his form sharply defined against the disk of the full moon, and shot him ; after that I could hear another further down the valley, but it never came near the temple. The bed of the stream was haunted by Violet Whistling Thrushes (*Myiophoneus cæruleus*), Dippers (*Cinclus pallasi*), Fork-tails (*Henicurus sinensis* and *Microcincla scouleri*), and Dusky Redstarts (*Ruticilla fuliginosa*), and on the 23rd a number of Grey Wagtails (*M. melanope*) arrived. Around the temple the woods were full of life ; two species of *Cettia* (*C. canturiens* and *C. fortipes*) were calling incessantly ; there were flocks of Siskins (*Chrysomitris spinus*), Golden-wing Finches (*Chloris sinica*), Wedge-tailed Nutmeg-birds (*Munia acuticauda*), and Red-headed Suthoras (*Suthora suffusa*). *Phylloscopus proregulus*, one of the smallest of the Willow Warblers, had made its appearance. Among resident species, Blue Pies (*Urocissa sinensis*), Yellow-vented Bulbuls (*Pycnonotus xanthorhous*), Green Mountain Bulbuls (*Spizixus semitorques*), Red-headed Tits (*Acredula concinna*), Hwameis (*Trochalopteron canorum*), and an occasional Scimitar-bill (*Pomatorhinus styani*) were noted ; other species there were which are found everywhere, too numerous to name."

A new Tunisian Lark.—In a recently issued number of the 'Journal für Ornithologie,' Dr. A. Koenig, in an article upon the "Avifauna of Tunis," describes and figures a new species of Lark under the name *Alæmon margaritæ* (op. cit. p. 228, tab. ii), apparently allied to *Certhilauda duponti*. A pair of this species were obtained by the describer in March 1887, in the neighbourhood of Gabes, in Southern Tunis.

Obituary. Mr. R. S. WRAY.—With great regret we have to record the death, at the early age of twenty-four, of a Biologist of great promise, Mr. RICHARD SPALDING WRAY, B.Sc., Lond. The son of the Rev. William Wray, a Nonconforming minister in Yorkshire, he early developed a strong taste for natural-history pursuits, which led him to become a student at the Normal School of Science at

South Kensington, where he eagerly followed the teachings of Prof. Huxley and Mr. Howes. When, at the close of the year 1884, Prof. Flower was seeking some one to assist him in the formation of an elementary series of biological preparations to be placed in the great hall of the National Museum of Natural History, as an introduction to the study of the subjects more fully developed in the special galleries, he became acquainted with Mr. Wray, who entered with enthusiasm into the project, and soon showed that he possessed every natural capacity requisite for such a work. A neat-handed, skilful dissector, a good mechanic, an excellent draftsman, he displayed great taste and ingenuity in carrying out and even, it is said, improving upon the suggestions made to him by the Director. While he was engaged in the formation of a series of preparations to illustrate the arrangement of the bones and feathers of the wings of birds, the very insufficient state of the knowledge upon the subject, as recorded in ornithological works, became apparent, and Mr. Wray made some valuable original observations, which were embodied in a paper "On some Points in the Morphology of the Wings of Birds," published in the 'Proceedings' of the Zoological Society for 1887. This and two minor papers on kindred subjects* were all that he was able to communicate to the world; for, unhappily, his powers were greatly diminished by long-continued ill-health, and finally gave way to pulmonary phthisis, to which he succumbed on the 12th of February last. He has, however, left a lasting memorial of his patience, ability, and knowledge in the preparations which enrich the Museum; and his simple, modest, unaffected character, and the genuine earnestness with which he entered into the performance of every duty, will not be easily forgotten by those who had the pleasure and advantage of being in any way associated with him.

* These are:—(1) "On the Structure of the Barbs, Barbules, and Barbicels of a Typical Pennaceous Feather," *Ibis*, 1887, p. 420; (2) "Note on a Vestigial Structure in the Adult Ostrich representing the Distal Phalanges of Digit III.," *P. Z. S.* 1887, p. 233.

THE IBIS.

SIXTH SERIES.

No. III. JULY 1889.

XXV.—*On the Ornithology of Northern Borneo.* By R. BOWDLER SHARPE, F.L.S., F.Z.S., &c. *With Notes* by JOHN WHITEHEAD.—Part III.*

(Plate IX.)

Fam. TURDIDÆ.

76. LOCUSTELLA OCHOTENSIS.

Locustella ochotensis (Midd.) ; Seebohm, Cat. B. v. p. 113 (1881).

a. ♂ ad. Kina Balu, May 10, 1888. Wing 2·8 inches.

b. ♂ ad. Lawas River, April 8, 1886. Wing 2·6 inches.

Sir Hugh Low was the first to meet with this species in Borneo, and his collectors procured in Lumbidan a specimen which is now in the collection of the British Museum, as recorded by Mr. Seebohm (*l. c.*).

[This bird was obtained for me by one of my collectors close to my camp at 1000 feet elevation. It was probably on its way north at the time.]

77. PHYLLOSCOPUS XANTHODRYAS.

Phylloscopus xanthodryas, Swinh. ; Sharpe, Ibis, 1879, p. 255 ; Seebohm, Cat. B. v. p. 422 (1881).

a. ♀ ad. Kina Balu, March 15, 1887.

[Obtained at about 1000 feet.]

* Continued from p. 205.

78. *ACROCEPHALUS ORIENTALIS*.

Acrocephalus orientalis (T. & S.) ; Salvad. Ucc. Born. p. 251 ; Seebohm, Cat. B. v. p. 97 ; Sharpe, Ibis, 1876, p. 41, 1877, p. 16, 1879, p. 255.

a. ♂ ad. Tampussak, Feb. 27, 1886.

b. ♀ ad. Tampussak, March 2, 1886.

c, d. ♂ ♀ ad. Labuan, Nov. 30, 1885.

e. Ad. Labuan, Jan. 5, 1886.

[Evidently a migrant. Inside of mouth bright orange ; legs slaty blue.]

79. *HORORNIS OREOPHILA*.

Horornis oreophila, Sharpe, Ibis, 1888, p. 388.

Cettia oreophila, Sharpe, l. c. p. 387.

a, b, c. ♂ ; *d, e.* ♀ ad. Kina Balu, Feb. 1888.

I have fully described both sexes of this new species (*l. c.*).

[It was only when I got on to the higher slopes of Kina Balu that I met with this Warbler, which occurs between 7000 and 12,000 feet. It is always found frequenting the thick undergrowth. It has a feeble song.]

80. *GEOCICHLA AURATA*.

Geocichla aurata, Sharpe, Ibis, 1888, p. 478.

a. ♀ juv. Kina Balu, May 10, 1888.

b. ♀ ad. Kina Balu, May 11, 1888.

c. ♂ juv. Kina Balu, May 13, 1888.

d, e. ♂ ♀ ad. Kina Balu, May 15, 1888.

The adult female is exactly like the male. Total length 8 inches, culmen 0·8, wing 4·4, tail 2·75, tarsus 1·35.

The young bird is duller blue-grey, the head and mantle mottled with orange-yellow centres to the feathers, and the wing-coverts with large yellowish-buff spots at their ends ; the lores and sides of the face are orange-buff, with a black line from the eye down to the hinder cheeks, and a black patch on the hinder ear-coverts ; under surface of body bright orange, the throat white, encircled by a black line on the fore neck, the breast-feathers mottled with blackish ends ; abdomen and under tail-coverts white, with scarcely any

yellow tinge. The bill entirely black, without the pale base of *G. citrina*.

In the depth of the orange-colour on the head and sides of face this species almost equals *G. rubecula* of Java, but is not so intensely coloured on the body. It is more richly coloured than the ordinary *G. citrina*, but has the abdomen and under tail-coverts white washed with yellow.

[Bill black ; legs dirty pinkish white ; iris black. It was only when I was on the point of leaving the mountain on my second expedition that I fell in with this Thrush, which I got at about 3000 feet elevation. The young were fully fledged by the beginning of May.]

81. *MERULA SEEBOHMI*.

Merula seebohmi, Sharpe, Ibis, 1888, p. 386.

a. ♂ ad. Kina Balu, Jan. 31, 1888.

b, c. ♂ ; d, e. ♀ ad. Kina Balu, Feb. 1888.

f. ♀ juv. Kina Balu, Feb. 18, 1888.

The typical female had a few remains of buff centres to the wing-coverts, and was described by me as "immature," but it is practically adult. The fully adult female is scarcely to be distinguished from the male and is only a trifle browner. Wing 4 inches. More than one specimen has the abdomen mottled with black feathers edged with buff ; but these markings are unaccompanied by other signs of nonage.

The young bird has a dusky bill and is more dingy black than the adults, with deep buff streaks down the back and on the wing-coverts, taking the form of small spots at the end of the greater series ; sides of face and ear-coverts dusky blackish, mottled on the cheeks with rufous ; a broad blackish malar streak ; throat uniform rufous buff ; rest of under surface deep rufous, whiter on the abdomen, the fore neck mottled with black-spotted feathers, the sides of the neck uniform black ; the black spots less distinct on the breast ; under tail-coverts as in the adult female.

[Iris black ; bill and feet and ring round the eye king's yellow. This Blackbird was at once recognized by me as new directly I saw it, for I had already met with *M. javanica*

in the highlands of Java. It was the very first bird to greet me when I reached the height of 8000 feet, and while I was preparing my camp one of them came and sat down close to me. In my anxiety to shoot it I got away to a little distance and fired somewhat over it, so as not to injure the specimen too much. I missed it, however, altogether, but instead of flying away it simply went up into a tree above me, and I shot it at once. It fell into the mossy and tangled undergrowth, and gave me a long hunt before I picked it up. I was delighted to see how different it was in appearance from its Javan representative, and I afterwards gave great attention to the procuring of further specimens. Altogether I met with several pairs, and obtained a full-fledged nestling on the 18th of February. I never observed this Blackbird below 8000 feet; but it was seen as high as 12,000 feet, and was most plentiful at about 9000 feet. I never heard it sing or utter any particular cry; but the Javan Blackbird has very much the habits of its English cousin, even to the chattering note with which it takes flight.]

82. *MERULA OBSCURA*.

Merula obscura (Gm.); Seebohm, Cat. B. v. p. 273.

- a. ♀ imm. Labuan, Dec. 4, 1887.
- b. ♂ ad. Labuan, Dec. 6, 1885.
- c, d. ♂ ♀ ad. Labuan, March 8, 1888.
- e. ♀ ad. Labuan, March 16, 1888.

[This bird was plentiful round Kina Balu up to 8000 feet, going in flocks, like Redwings. The note is also somewhat like that of the latter bird. It passes through Labuan every year in considerable numbers during the North-west Monsoon.]

83. *ERITHACUS CYANEUS*.

Erythacus cyaneus (Pall.); Seebohm, Cat. B. v. p. 303.

- a. ♀ ad. Kina Balu, March 20, 1887.

[Shot on the lower hills of Kina Balu at about 1000 feet during my first ascent. It was collected near one of the Dusan villages, but I know nothing of its habits.]

84. MONTICOLA SOLITARIA.

Monticola solitaria (P. L. S. Müll.) ; Seebohm, Cat. B. v. p. 319 ; Sharpe, P. Z. S. 1879, p. 249.

Monticola pandoo, Sharpe, Ibis, 1877, p. 13.

a, b. ♂ ad. et juv. Labuan, Dec. 1885.

c. ♀ ad. Labuan, Dec. 9, 1887.

The male is in the intermediate stage called by Mr. Seebohm *Monticola cyanus solitaria*. The young male resembles the female, but is a little more tinged with reddish on the throat and breast.

[Apparently a regular winter migrant through Labuan.]

85. MYIOPHONEUS BORNEENSIS.

Myiophoneus borneensis, Slater ; Sharpe, Ibis, 1887, p. 444.

a, b. ♂ ♀ ad. Kina Balu, March 1887.

c, d. ♂ ad. ; ♀ juv. Kina Balu, April 1888.

See my remarks (*l. c.*). The adult female is precisely like the male in plumage.

[Frequenting the borders of rocky streams, where it may be noticed most often in the early morning, hopping about on the large rocks, but disappearing at the least alarm into the thick forest. Met with sparingly from 2000 to 9000 feet on Kina Balu. This bird has a pleasant whistling note, which it utters when perched on the lower boughs of high trees. I saw a nest of this species which was placed in a crevice in some high and precipitous rocks over a small river, but it was impossible to reach the spot. The nest, I believe, contained young, judging by the frequent visits of the old bird ; this was on the 23rd April, 1888.

Iris dark brown ; feet and bill black.]

86. TRICHIXUS PYRRHOPYGUS.

Trichixus pyrrhopygus, Less. ; Salvad. Ucc. Born. p. 224 ; Sharpe, Ibis, 1877, p. 13 ; id. Cat B. vii. p. 32.

a. ♂ ad. Benkoka, Sept. 20, 1885.

b, c. ♂ ♀ ad. Benkoka, Oct. 11-14, 1885.

d. ♂ juv. Benkoka, Oct. 27, 1885.

[Bill black ; iris black ; feet flesh-colour in the adult male.]

Only met with in this locality, where it frequented the lower growth in the true forest.]

87. *COPSYCHUS AMÆNUS*.

Copsychus amœnus (Horsf.) ; Salvad. Ucc. Born. p. 255 ; Sharpe, P. Z. S. 1881, p. 798 ; Blasius, Verh. z.-b. Gesellsch. Wien, xxxiii. p. 64 (1883).

a, b. ♂ ♀ . Labuan, Aug. 1885.

[This is one of those species that frequent the haunts of man. I have never seen this bird far from the native kampongs ; in the early mornings it may often be seen sitting on the tops of houses singing, and being answered by some rival near at hand. The note is pleasing, and the bird is honoured by the name of the " Straits Nightingale." During the heat of the day it frequents the thick fruit-trees and more shady spots ; it often settles on the ground, when it raises the tail perpendicularly, in fact over the back.]

Native name " Kalageau."

Is met with on Kina Balu up to 1000 feet. In the beginning of May I found the eggs. They are three or four in number, of a pale blue, thickly blotched all over with reddish brown, especially at the larger end, where the blue under surface is entirely covered. Axis 0·95, diam. 0·65.

The nest is composed entirely of fine roots, and hidden away amongst the overhanging roots of some tree, or in the branches. I once saw a nest within a few yards of a native's house.]

88. *CITTOCINCLA STRICKLANDI*.

Cittocincla stricklandi (Motley & Dillw.) ; Sharpe, Cat. B. vii. p. 89 ; id. Ibis, 1879, p. 255.

Kittacincla stricklandi, Salvad. Ucc. Born. p. 340.

a. ♂ ad. Kina Balu, March 23, 1887.

b. ♂ juv. Kina Balu, March 23, 1887.

c. ♂ ad. Labuan, Aug. 14, 1885.

d. ♂ ad. Labuan, Sept. 8, 1885.

[One of the commonest forest-species, where it may be

met with frequenting the lower growth and branches of the high trees. Bill and eye black, feet brown.

Native name "Pleata sungei," *i. e.* "River Lamp," no doubt from the yellow breast of the bird.]

Fam. PYCNONOTIDÆ.

89. *ÆGITHINA VIRIDISSIMA*.

Ægithina viridissima (Bp.); Sharpe, Cat. B. vi. p. 6.

Iora viridissima, Salvad. Ucc. Born. p. 192; Sharpe, Ibis, 1879, p. 256; Blasius, Verh. zool.-bot. Gesellsch. Wien, xxxiii. p. 56.

a. ♂ ad. Labuan, Dec. 4, 1887.

b. ♂ ad. Benkoka, Nov. 4, 1885.

[This was recorded for the first time from Labuan by Governor Ussher. It is everywhere a scarce bird.]

90. *ÆGITHINA VIRIDIS*.

Ægithina viridis (Bp.); Sharpe, Cat. B. vi. p. 11; id. P. Z. S. 1881, p. 796.

Iora scapularis, Salvad. Ucc. Born. p. 190; Sharpe, Ibis, 1877, p. 15; Brüggem. Abhandl. Bremen, v. p. 458 (1877); Blasius, J. f. O. 1882, p. 250.

a. ♀ ad. Labuan, July 6, 1885.

b. ♂ ad. Labuan, Aug. 20, 1885.

[Very plentiful in Labuan, where it breeds. The egg procured by me differs slightly from that described by Mr. Sharpe. The ground-colour is creamy white, and the spots are nearly absent on the body of the egg, but collect in a zone round the larger end.]

91. *CHLOROPSIS ZOSTEROPS*.

Chloropsis zosterops, Vig.; Sharpe, Cat. B. vi. p. 204; id. P. Z. S. 1881, p. 796.

Phyllornis sonneratii, Salvad. Ucc. Born. p. 193; Sharpe, Ibis, 1877, p. 15, 1879, p. 256; Brüggem. Abhandl. Bremen, v. p. 458 (1877); Blasius, J. f. O. 1882, p. 251; id. Verh. z.-b. Ges. Wien, xxxiii. p. 58 (1883).

a. ♂ ad. Benkoka, Oct. 22, 1885.

b. ♂ ad. Lawas River, March 28, 1886.

[A common bird in Northern Borneo.]

92. CHLOROPSIS CYANOPOGON.

Chloropsis cyanopogon (T.) ; Sharpe, Cat. B. vi. p. 32.

Phyllornis cyanopogon, Salvad. Ucc. Born. p. 194 ; Sharpe, Ibis, 1876, p. 40, 1877, p. 15, 1879, p. 256 ; Brüggem. Abhandl. Bremen, v. p. 459 (1877) ; Blasius, J. f. O. 1882, p. 251 ; id. Verh. z.-b. Ges. Wien, xxxiii. p. 58 (1883).

a. ♂ ad. Benkoka, Oct. 20, 1885.

93. CHLOROPSIS KINABALUENSIS. (Plate IX.)

Chloropsis kinabaluensis, Sharpe, Ibis, 1887, p. 445.

Chloropsis flavocincta, Sharpe, ibid.

a, b. ♂ ♀ ad. Kina Balu, Feb. 24, 1887.

c, d. ♂ ♀ ad. Kina Balu, March 5, 1887.

e. ♀ ad. Kina Balu, April 2, 1887.

f. ♀ ad. Kina Balu, May 11, 1888.

g. ♂ juv. Kina Balu, Feb. 24, 1887.

On looking over Mr. Whitehead's series there is no longer any doubt possible with regard to the sexes of this green Bulbul. *Chloropsis kinabaluensis* is the female of *C. flavocincta*, as Mr. Whitehead said at the time when he shot them. I was led away by the black throat of the hen bird, so remarkable a feature in the species, and so unexpected in the genus *Chloropsis*. I retain the name of *kinabaluensis* for the bird, because it is almost certain to be found to be an inhabitant of Kina Balu only, and, secondly, because there are other allied species with a yellow collar, so that the name of *flavocincta* is not distinctive. The extent of the blue moustache of the male varies greatly, being in some large and broad and in others absent altogether ; it is sometimes quite light blue.

A young male is very like the old female, but is paler green, and with the emerald-green collar round the black throat less distinct. The lores and a patch near the base of the cheeks are black, but the malar line and the rest of the cheeks are emerald-green, like the sides of the face. This bird was shot on the 10th of May. Another immature male, procured on the 24th of February, has the face black, like the old male, a good deal of yellow on the forehead, and the emerald-green collar has a good many yellow feathers

immatured showed an approach to the mature plumage of

plumage. Like *Criniger ruficrissus*, this Bulbul has a peculiar appearance at a distance. It sits with its fluffy throat-feathers puffed out, so much so that my men often thought the bird had a lump of wool in its bill for nesting-purposes, and spared the bird in the hopes of finding its nest.]

95. *HEMIXUS MALACCENSIS*.

Hemixus malaccensis (Blyth); Sharpe, Cat. B. vi. p. 53 (1881); id. P. Z. S. 1881, p. 797.

Hypsipetes malaccensis, Salvad. Ucc. Born. p. 202; Sharpe, Ibis, 1879, p. 256.

a. ♂ ad. Sandakan, April 25, 1885.

[Legs and bill dark brown; iris dark reddish brown.]

96. *MICROPUS MELANOLEUCUS*.

Micropus melanoleucus (Eyton); Sharpe, Cat. B. vi. p. 69.

Microtarsus melanoleucus, Salvad. Ucc. Born. p. 202.

Ixus melanoleucus, Brüggem. Abhandl. Bremen, v. p. 458 (1877).

a. ♂. Lawas River, April 2, 1886.

[Iris, bill, and feet black.]

97. *MICROPUS MELANOCEPHALUS*.

Micropus melanocephalus (Gm.); Sharpe, Cat. B. vi. p. 65; id. P. Z. S. 1881, p. 797.

Brachypodius melanocephalus, Salvad. Ucc. Born. p. 201.

Brachypodius immaculatus, Sharpe, Ibis, 1876, p. 39, 1877, p. 14.

a. ♀ ad. Kina Balu, March 25, 1887.

b. ♂ ad. Kina Balu, April 2, 1887.

98. *CRINIGER PHÆOCEPHALUS*.

Criniger phæocephalus (Hartl.); Salvad. Ucc. Born. p. 207 (1874); Sharpe, Ibis, 1877 p. 14; id. Cat. B. vi. p. 74 (1881); id. P. Z. S. 1881, p. 797.

a. ♂ ad. Benkoka, Nov. 5, 1885.

99. *CRINIGER RUFICRISSUS*.

Criniger ruficrissus, Sharpe, P. Z. S. 1879, p. 248; id. Cat. B. vi. p. 81 (1881).

a. ♂ ad. Kina Balu, Jan. 11, 1888.

b, c. ♂ ♀ ad. Kina Balu, Feb. 18–24, 1887.

d, e. ♂ ♀ ad. Kina Balu, March 23, 1888.

f, g. ♂ ♀ ad. Kina Balu, April 3, 1888.

The sexes are alike and measure as follows:—

a. ♂ ad. Total length 8·8 inches, culmen 0·85, wing 4·35, tail 4·9, tarsus 0·8.

b. ♀ ad. Total length 8·5 inches, culmen 0·75, wing 4·15, tail 3·9, tarsus 0·8.

[Bill black, lower mandible bluish white; feet pinkish brown; iris light brown. On Kina Balu, to which mountain this species appears to be confined, it is only found in the lower valleys at about 3000 feet, among the tropical forest-growth. It is generally seen searching about high up in the trees, and has a loud disagreeable note, but at times whistles prettily.]

100. TRICHOLESTES CRINIGER.

Tricholestes criniger (Blyth); Sharpe, Cat. B. iv. p. 89; id. P. Z. S. 1881, p. 797.

Tricholestes criniger, Salvad. Ucc. Born. p. 205, tav. v. fig. 1; Sharpe, Ibis, 1877, p. 14, 1879, p. 257.

a, b. ♂ ♀ ad. Benkoka, Nov. 5, 1885.

101. TRACHYCOMUS OCHROCEPHALUS.

Trachycomus ochrocephalus (Gm.); Salvad. Ucc. Born. p. 196 (1874); Sharpe, Ibis, 1876, p. 38; id. P. Z. S. 1879, p. 246; id. Ibis, 1879, p. 256; id. Cat. B. vi. p. 93 (1881); Brüggem. Abhandl. Bremen, v. p. 458 (1877).

a, b. ♂ ♀ ad. Tampussak River, Feb. 16, 1886.

[This bird ascends Kina Balu to about 1000 feet.]

102. PYCNONOTUS ANALIS.

Pycnonotus analis (Horsf.); Salvad. Ucc. Born. p. 197 (1874); Sharpe, Ibis, 1876, p. 38, 1879, p. 256; id. P. Z. S. 1881, p. 797; id. Cat. B. vi. p. 140 (1881).

a. ♂ ad. Kina Balu. Feb. 11, 1888.

[One of the commoner birds of the Malayan region. It ascends Kina Balu only to about 1000 feet. These Bulbuls

are seen in Labuan towards evening in swarms going through the mango-trees, where they roost in large flocks. At this time they are very noisy. They are common enough also on Kina Balu at a low elevation, and I have known a Dusan boy to go out of an evening and catch three or four with his "gutta" stick. It nests on the mountain.

The eggs are of the usual Bulbul type, with the ground-colour pinkish white, thickly mottled with red spots and underlying grey markings. The shape varies a good deal. Axis 0·85–1·0, diam. 0·65–0·7.]

103. PYCNONOTUS SIMPLEX.

Pycnonotus simplex, Less.; Sharpe, Cat. B. vi. p. 153, pl. ix. (1881); id. P. Z. S. 1881, p. 796.

Ixus simplex, Brüggem. Abhandl. Bremen, v. p. 458 (1877); Blasius, Verh. z.-b. Gesellsch. Wien, xxxiii. p. 59 (1883).

a. ♂ ad. Kina Balu, May 5, 1888.

[Ascends Kina Balu up to about 1000 or 1500 feet. I also shot one in Malacca, which had a white iris, like the specimen figured by Mr. Sharpe in the 'Catalogue of Birds.']

104. RUBIGULA MONTIS.

Rubigula montis, Sharpe, P. Z. S. 1879, p. 247.

Otocompsa montis, Sharpe, Cat. B. vi. p. 162.

a. ♂ ad. Kina Balu, Jan. 14, 1888.

b, c. ♂ ♀ ad. Kina Balu, Feb. 25, 1888.

d. ♂ ad. Kina Balu, March 18, 1888.

e. ♀ ad. Kina Balu, April 2, 1887.

f. ♂ ad. Kina Balu, May 5, 1888.

To the original description may be added that the sexes are alike in colour, and measure as follows:—

♂ ad. Total length 6 inches, culm. 0·55, wing 3·0, tail 2·7, tarsus 0·65.

♀ ad. Total length 6 inches, culm. 0·6, wing 3·1, tail 2·85, tarsus 0·7.

[Iris dark brown; bill and feet black. Only met with on Kina Balu at 3000 feet, frequenting the rough growth which springs up on the old rice-fields. It is decidedly scarce.]

105. *OREOCTISTES LEUCOPS*, Sharpe, Ibis, 1888, p. 388, pl. ix. fig. 1.

a, b. ♂; *c, d.* ♀. Kina Balu, Feb. 1888.

This species has been fully described (*l. c.*). The genus is close to *Kelaartia* of Ceylon, but has no auricular tufts, a more rounded tail, and a very peculiar short bill.

[Iris, bill, and feet black. It was only met with at a great altitude on Kina Balu, and is apparently very local. I found it between 7000 and 8000 feet, and it was mostly seen near the latter elevation. It frequented the scrub in parties of two and three.]

106. *IRENA CRINIGERA*.

Irena criniger, Sharpe, Cat. B. vi. p. 176; Brüggem. Abhandl. Bremen, v. p. 458 (1877); Sharpe, Ibis, 1879, p. 257.

Irena puella (nec Lath.), Salvad. Ucc. Born. p. 176.

Irena cyanea (nec Begbie), Blasius, J. f. O. 1882, p. 248.

Irena turcosa (nec Wald.), Sharpe, Ibis, 1876, p. 44.

a. ♂ ad. Benkoka, Sept. 21, 1885.

b. ♂ juv. Lawas River, May 1, 1886.

c. ♀ ad. Kina Balu, March 20, 1887.

[Found on Kina Balu up to 1000 feet.]

Fam. HENICURIDÆ.

107. *HENICURUS BORNEENSIS*, sp. n.

♂. Similis *H. sinensi*; plagâ frontali albâ, rotundatâ; rectricibus apicaliter maculatis, sicut in *H. leschenaulti* notatis; supracaudalibus et subcaudalibus cervino lavatis. Long. tot. 9·5 poll. Angl., culm. 0·9, alæ 4·0, caudæ 4·95, tars. 1·2.

♀ mari similis. Long. tot. 8·8 poll. Angl., culm. 0·9, alæ 4·0, caudæ 4·5, tars. 1·1.

a. ♂ ad. Kina Balu, March 1, 1888.

b. ♂ ad. Kina Balu, March 29, 1888.

c. ♀ ad. Kina Balu, April 13, 1888.

d, e. ♂ ♀ juv. Kina Balu, April 14, 1888.

[Frequents the rocky beds of the mountain-torrents, seeming to prefer the deep dark gorges, where little or no sunlight enters. This species is rather difficult to obtain, being very shy, and flying out of shot, or more often out of sight, into

the forests which border the streams. The note is a pleasant whistle, which is always uttered when the bird is alarmed, before taking flight. I have seen three or four flying after each other up these dark gorges, and the tail seems more like a streamer, waving up and down with every motion of the bird. It is fairly plentiful on some of the many streams which come down from Kina Balu, from 1000 to 3000 or 4000 feet; but on others, which were apparently too broad and open, I did not notice the bird.

Eye and bill black; legs and claws white.]

108. *HYDROCICHLA FRONTALIS*.

Hydrocichla frontalis, Blyth; Sharpe, Cat. B. vii. p. 321; id. Ibis, 1879, p. 255.

Henicurus frontalis, Salvad. Ucc. Born. p. 258; Sharpe, P. Z. S. 1881, p. 798.

a, b. ♂ ♀ ad. Benkoka, Oct. 20, 1885.

c. ♂ ad. Benkoka, Oct. 23, 1885.

The specimens brought by Mr. Whitehead confirm the characters given for the distinction of the sexes in the 'Catalogue' (*l. c.*).

[This species is apparently a lowland representative of the last, agreeing in habits; but those I shot frequented a deep muddy ditch in the tideway of a river not far from the coast, and were very wary, requiring a great deal of work to bring them to bag.

Eye and bill black; legs and claws white.]

Fam. TIMELIIDÆ.

109. *BURNESIA SUPERCILIARIS*.

Burnesia superciliaris (Salvad.); Sharpe, Cat. B. vii. p. 206.

Prinia superciliaris, Salvad. Ucc. Born. p. 249; Sharpe, Ibis, 1877, p. 16, 1879, p. 259.

a. ♀ ad. Labuan, July 13, 1885.

b. ♂ ad.; *c.* Juv. Labuan, July 26, 1885.

d. Juv. Labuan, Aug. 15, 1885.

[Iris light hazel; bill black; feet light yellow in adult male. In the young the bill and feet are light yellow and the iris light brown.

Met with in the l'lang plains and other open places. This little bird makes a very audible snipping noise with its wings when making its short flights from one bush to another. The nest is a round structure, placed well off the ground amongst the stems of coarse grass or ferns; it is composed of grasses, lined with the same material, and entered from a hole in the side. Eggs three, of bright terra-cotta red, slightly deeper at the larger end; laid about the middle of May. Axis 0·6, diam. 0·45.]

110. *ORTHOTOMUS RUFICEPS*.

Orthotomus ruficeps (Less.); Salvad. Ucc. Born. p. 248; Sharpe, Cat. B. vii. p. 224; id. Ibis, 1879, p. 259; id. P. Z. S. 1881, p. 798; Brüggem. Abhandl. Bremen, v. p. 460 (1877).
a, b. ♂ ad. Kina Balu, March 20, 1887.

c. ♂ ad. Kina Balu, March 25, 1887.

[One of the omen-birds (or *angī*) of the Teutongs. Only procured on my first ascent of the mountain at a height of 1000 feet.]

111. *ORTHOTOMUS CINERACEUS*.

Orthotomus cineraceus, Blyth; Salvad. Ucc. Born. p. 248; Sharpe, Cat. B. vii. p. 225; id. Ibis, 1879, p. 259; id. P. Z. S. 1881, p. 798; Brüggem. Abhandl. Bremen, v. p. 460 (1877).

Orthotomus borneonensis, Sharpe, Ibis, 1876, p. 41, pl. ii. fig. 1.

a, b. ♂ ♀ ad. Kina Balu, March 1887.

[These two species of Tailor-birds are similar in their habits, affecting the same localities, and often found in company. They frequent the more open places near the edges of the forest, where they hunt the low growth for their insect food. I met with both species up to 1000 feet on Kina Balu.

Native name "Chuk bodo."]

112. *PHYLLERGATES CINEREICOLLIS*.

Phyllergates cinereicollis, Sharpe, Ibis, 1888, p. 479.

a. Ad. Kina Balu, Feb. 15, 1887.

b. ♂ ad. Kina Balu, Feb. 10, 1888.

c, d. ♂ ♀ ad. Kina Balu, March 26, 1888.

e. ♀ ad. Kina Balu, May 26, 1888.

Adult male. General colour above olive-green from the mantle to the upper tail-coverts; lesser wing-coverts like the back; median and greater coverts, bastard-wing, primary-coverts, quills, and tail-feathers dusky brown, with olive-green margins; crown of head orange-rufous to the occiput; the nape washed with olive-green; hind neck clear ashy grey, like the sides of the neck, and forming a broad collar; lores blackish, surrounded by a narrow superciliary line, which becomes bright yellow above the eye and white again above the ear-coverts; sides of face and ear-coverts dark ashy grey; cheeks and throat, fore neck, and chest ashy white, becoming purer white on the breast; sides of throat and breast ashy grey; abdomen, entire sides of body, flanks, and under tail-coverts bright yellow; thighs yellow, with dusky bases; under wing-coverts and axillaries yellow; quills beneath dusky, white along the inner edge. Total length 4·4 inches, culmen 0·65, wing 1·85, tail 1·85, tarsus 0·8.

Adult female. Similar to the male. Total length 4 inches, culmen 0·6, wing 1·7, tail 1·6, tarsus 0·7.

[I met with one specimen of this species during my first expedition in 1887 in a bamboo-jungle at 4000 feet on Kina Balu, but it was so much destroyed by shot as to be useless for identification. During the next expedition it was found more plentifully in the stretch of old forest close to the foot of the mountain, where it frequented the low growth and large jungle-plants near the ground.

Bill and eye black; legs light brown, paler at the back.]

113. CYANODERMA BICOLOR.

Cyanoderma bicolor (Blyth); Sharpe, P. Z. S. 1875, p. 105; id. Ibis, 1876, p. 40, 1877, p. 11.

Cyanoderma erythropterum (nec Bl.), Salvad. Ucc. Born. p. 213.

Mixornis bicolor, Sharpe, Cat. B. vii. p. 581.

Timelia bicolor, Brüggem. Abhandl. Bremen, v. p. 460 (1877).

a. Ad. Benkoka.

[Fairly common in the low growth in swampy jungle and in old forest.]

114. STAPHIDIA EVERETTI.

Staphidia everetti, Sharpe, Ibis, 1887, p. 447.

a. ♀ ad. Kina Balu, Jan. 19, 1888.

b. ♀ ad. Kina Balu, Feb. 20, 1887.

c. ♂ ad. Kina Balu, March 2, 1887.

d. ♂ ad. Kina Balu, April 7, 1888.

e. ♀ ad. Kina Balu, May 4, 1888.

The length of wing in the female should be 2·5 inches.

[Fairly common in the old forest between 3000 and 4000 feet on Kina Balu, where they pass from one tree to another in small twittering flocks of from six to nearly a dozen individuals. The crest is often raised and the throat puffed out. This *Staphidia* builds its nest in small holes in the river-banks and in other suitable spots in the forest; it is composed of moss and lined with fine roots, and contains three eggs, which are white and spotted all over, especially at the larger end, with dark reddish-brown, and may be found about the 13th of March. Axis 0·7, diam. 0·45.

Eye dark brown; bill black; legs brown.]

115. HERPORNIS BRUNNESCENS.

Herpornis brunnescens, Sharpe, Ibis, 1876, p. 41, 1879, p. 257; id. Cat. B. vii. p. 637; id. P. Z. S. 1881, p. 797.

a. ♂ ad. Sandakan, April 24, 1885.

b, c. ♂ ♀ ad. Kina Balu, May 13, 1888.

Mr. Whithead's specimens confirm the distinctness of the Bornean race.

[Legs flesh-colour; bill black, lower mandible flesh-colour; iris dark brown.

I shot my first specimen in a bit of old forest near Sandakan, and did not again meet with this species until years after, when I found it in small companies at an altitude of 5000 feet on Kina Balu.]

116. *CHLOROCHARIS EMILIAE*.

Chlorocharis emiliae, Sharpe, Ibis, 1888, p. 392, pl. xi. fig. 1.

a. ♂ ad. Kina Balu, Jan. 28, 1888.

b, c. ♂ ♀ ad. Kina Balu, Feb. 21–27, 1888.

d. ♂ ad. Kina Balu, March 1, 1888.

[The first notice I find of this species is in Mr. St. John's book, 'Life in the Forests of the far East,' where he mentions, during his first expedition to this mountain, that "the Ida'an (Dusans), during the day, amused themselves in trying to secure some small twittering birds, which looked like Canaries, with a green tint on the edges of their wings, but were unsuccessful. They shot innumerable pellets from their blowpipes, but did not secure one. In fact, they did not appear to use this instrument with any skill." This note was made nearly thirty years ago, and it was only in the beginning of 1888 that the first of these "twittering birds" was sent to this country. I met with this species at from 6000 to 12,000 ft. on Kina Balu; it frequents the low trees in small flocks, and is, perhaps, the commonest bird after 7000 feet. I shot a young bird on the 12th of February which had not long left the nest; it is coloured much the same as the adult, but is less vivid.

Eye hazel; upper mandible brown, nostrils black, lower mandible pale yellowish orange; feet brown, toes more yellowish, claws brown.]

117. *MACRONUS PTILOSUS*.

Macronus ptilosus, J. & S.; Salvad. Ucc. Born. p. 216; Sharpe, Ibis, 1876, p. 40, 1877, p. 11, 1879, p. 258; id. P. Z. S. 1881, p. 797; Brüggem. Abhandl. Bremen, v. p. 460 (1877); Blasius, Verh. z.-b. Ges. Wien, xxxiii. p. 62 (1883).

a. ♂ ad. Lawas River, March 27, 1886.

b, c. ♂ ad. Benkoka, Oct. 26, 1885.

d, e. ♂ ♀ ad. Kina Balu, Jan. 17, 1888.

[This, though common, is a really beautiful bird. It frequents the low growth in old forest, in the thickest and most entangled places. Is found only a few hundred feet up on the spurs of Kina Balu. It makes a large nest, which is

hidden away in the thick rank undergrowth. The nest is a loosely constructed ball of dead leaves, lined inwardly with fine roots, and the entrance is often somewhat hidden with fresh green moss stuck in the nest. The eggs are three, and glossy white. The nest was taken on the 17th January. Axis 0·8, diam. 6·6.

The native name is "Konkut Landak" (porcupine). Konkut is the native name of all Timeline birds; the name "landak" is applicable to the long white-stemmed feathers which stream from the sides and back.

Bill and feet black; skin round the eye and bare space on the sides of the neck dark French blue. These bare spaces are also found on the neck of *Stachyris maculata*, which has also long feathers on the back; so perhaps these genera are only slightly removed.]

118. *ALCIPPE CINEREA*.

Alcippe cinerea, Blyth; Sharpe, Cat. B. vii. p. 622.

a, b. ♂ ad. Benkoka, Sept. 16, 1885.

c. ♂ ad. Benkoka, Nov. 1, 1885.

d. ♀ ad. Kina Balu, May, 8, 1888.

[Found on Kina Balu up to 2000 feet.]

[To be continued.]

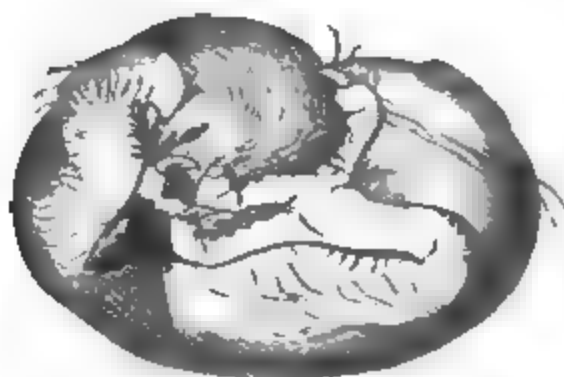
XXVI.—*Contributions to the Anatomy of the Hoatzin* (*Opisthocomus cristatus*), with particular Reference to the Structure of the Wing in the Young. By FRANK E. BEDDARD, M.A., F.Z.S., Prosector to the Zoological Society of London, Lecturer on Biology in the Medical School of Guy's Hospital.

SOMETIME since Mr. Sclater obtained from the Royal Society a grant of money for the purpose of acquiring specimens of the young of the Hoatzin; for some remarkable statements concerning the development of this bird, lately published in America, as well as the general interest attaching to this very isolated type, seemed to render a renewed study of its structure desirable. Mr. Quelch, the Superintendent of the

Georgetown Museum, Demerara, kindly interested himself in the matter, and forwarded in strong spirit a large number of eggs, nestlings, and adult birds, which arrived in England a few months ago*. Mr. Sclater, with great generosity, handed over to me the whole of the material, requesting me to furnish him with a report thereon. Some of the results of my study are embodied in the present paper.

The collection contained 9 adult birds, 12 chicks of various ages, and 28 eggs. A few of the latter were addled, but

Fig. 1.

*Opisthocomus cristatus.*

Young extracted from the egg: to show position in egg, continuous down-feathers, and the knob on the bill which serves to break the shell†.

from the greater number I was able to extract chicks, all of which were in an advanced stage of development, for the most part ready to leave the egg.

A paper upon the anatomy of *Opisthocomus*, which forms the most recent contribution to our knowledge of the structure of this bird, has been lately published by Dr. C. G. Young‡. This paper contains some new facts of interest with regard to the structure of the wing, which will be referred to in detail presently; the account of the habits of the bird is not without interest, but the general description of its anatomy cannot be regarded as of any value. In the first place there is absolutely not a single reference to the litera-

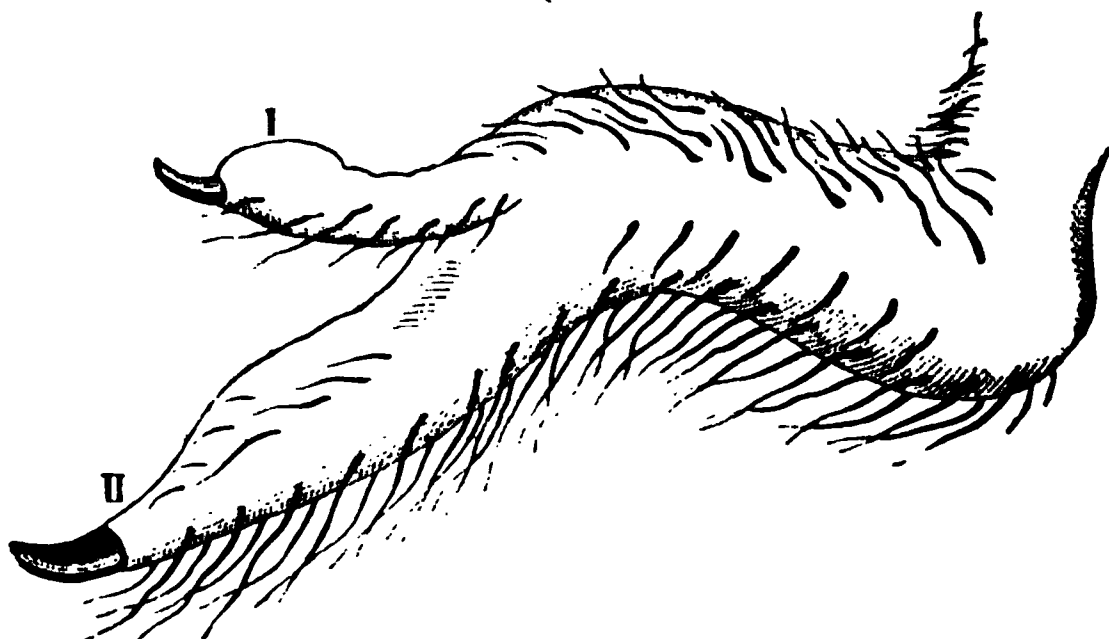
* See P. Z. S. 1889, p. 57.

† It is important to note whether this structure is present or absent; although usually present, Prof. T. J. Parker finds that it is not developed in *Apteryx* (Proc. Roy. Soc. vol. xliii. p. 497).

‡ "On the Habits and Anatomy of *Opisthocomus cristatus*, Illig.," Notes from the Leyden Museum, vol. x. p. 160.

ture of the subject, and the work of previous writers appears to be entirely ignored ; nor can this omission be excused on the ground that Dr. Young's description is so complete as to render useless any reference to older writers. The syrinx, which has been well figured (in two aspects) and described by Prof. Garrod*, is represented by a small† and very inaccurate drawing. The only description of the windpipe is as follows (p. 172) :—"The windpipe, after it enters the chest, gives off on each side one small branch, and passing on terminates into (*sic*) two tubes." Apart from the error contained in the first sentence (the "branches" are presumably the sterno-tracheal muscles, but are represented in the plates as if they were actually branches of the trachea itself!), it seems a waste of space to state that the trachea divides into two bronchi ; for this fact is not of any interest as a contribution to the structure of the genus.

Fig. 2.

*Opisthocomus cristatus.*

Left Manus of Chick from outside : I, pollex ; II, index.

Wing of young Opisthocomus.

The external characters of the wing of the young bird are illustrated in figs. 1 and 2 of the plate which accompanies Dr. Young's paper, and in woodcut, fig. 2, of the present article. The most remarkable point in the structure of this

* "Notes on Points in the Anatomy of the Hoatzin (*Opisthocomus cristatus*)," P. Z. S. 1879. p. 109, and Coll. Papers, p. 465.

† *Loc. cit.* pl. viii. fig. 6.

organ is the presence of a well-developed curved nail upon both the *pollex* and the *index*. In the large number of specimens which I have examined the relative positions of these two digits differ very considerably; sometimes they are parallel to each other, in other specimens opposed, and there are various gradations between these two extremes. The condition of the specimens quite bears out Dr. Young's statement that "both the thumb and [first] finger have the power of ab- and ad-duction;" and it is not surprising to learn that the young birds make use of their wings in scrambling about, and dig their claws into the ground.

It is highly interesting to find that the possession of these claws on the thumb and first finger, which is an archaic character found in but few birds*, is of *functional* importance in the young Hoatzin. The claws in the adult are, as Dr. Young correctly states, reduced to mere wart-like tubercles.

The first reference to the external characters of the wing in the young *Opisthocomus* is contained in a communication addressed to the Chicago Academy of Sciences by Mr. Edward M. Brigham, some selections from which have been printed in this Journal †, and I have been able, through the kindness of Mr. Sclater, to read an article upon the same subject published in the 'Chicago Tribune' of Oct. 1884. There is not, however, any exact description of the wing, but the presence of claws is noted.

Pterylosis.

After a careful study of the pterylosis of the adult bird, as well as of the nestlings and unhatched young, I find myself unable to agree with Nitzsch's description ‡ and illustrations § of the pterylosis of *Opisthocomus*.

* The most recent paper on this subject is by Prof. Parker "On the Development of the Wing in the Common Fowl," Phil. Trans. 1888. The principal types are there mentioned in which there are one, two, or three claws.

† Ibis, 1885, p. 118.

‡ 'Pterylography,' Engl. ed., by Sclater, p. 108.

§ *Ibid.* pl. vii. figs. 12, 13.

In the first place the line in Nitzsch's figure indicating the position of the carina sterni is misleading, as it does not show where the carina sterni really is ; the point is better illustrated in Mr. J. Beswick Perrin's account of the myology of *Opisthocomus**. Mr. Perrin does not, in this paper, enter into any description of the pterylosis, but repeats Nitzsch's figures†, with the remark that in his specimens "the pterylography . . . was almost identical with that figured in Nitzsch's work." The word "almost," in a question relating to pterylography, allows a considerable latitude for variation ; the differences in arrangement in the feather-tracts being often very inconspicuous, although very constant and therefore of importance.

In the adult bird the pterylosis of the head and neck is, as Nitzsch has correctly stated, continuous ; on the ventral side the two ventral tracts do not divide so early as is represented in Nitzsch's diagram ; the ventral surface is covered with a continuous feather-tract as far down as about halfway between the fore and hind limbs ; after this there is a median bare space of some extent, which is, however, sparsely feathered ; the median *apterion* does not, in fact, commence until the carina sterni, and is here exceedingly narrow, its width being precisely that of the carina ; the apterion is sharply marked here by a straight row of feathers on each side ; from this point the *apterion* is conspicuous and of some breadth, and the two ventral tracts become narrow, though connected by scattered feathering with the femoral tracts.

The lateral ventral tracts unite with one another some way in front of the cloacal aperture.

The spinal tracts do not show quite so regular an apterion as in Nitzsch's figures ; indeed, the dorsal surface is sparsely feathered all over, with stronger feathers here and there, particularly anteriorly, where they form a strong band, as figured by Nitzsch.

The humeral tracts are conspicuous, as figured by Nitzsch.

* "On the Myology of *Opisthocomus cristatus*," Trans. Zool. Soc. vol. ix. p. 353, pl. lxiii. fig. 3, *tb*.

† *Loc. cit.* pl. lxiii. figs. 1, 2.

The above notes upon the pterylosis of *Opisthocomus cristatus* were written before I had read what Prof. Garrod had said upon the subject in his article upon the anatomy of the bird*. It is important to notice that in the three specimens dissected the characters of the ventral pterylosis were much the same as in my specimen; there is therefore no room for doubt that the description and figures of Nitzsch are not perfectly correct.

Prof. Garrod, as well as Dr. Young and Mr. Brigham, remarks upon a patch of thickened integument which covers the surface of the carina sterni. The observations upon the habits of the bird made by Dr. Young, Mr. Brigham, and Mr. Quelch show that this callosity is probably due to the fact that the bird flies but little, although it possesses long and strong wings, but remains at rest, with the breast touching the branch of the tree. It might be suggested that this would also largely account for the bare spaces in front of and behind the carina sterni. If this be so the ventral *apterion* would not correspond to that of many other birds, but would be simply due to mechanical causes acting in the lifetime of the bird. Thus the feathering would be nearly continuous, a condition which there is some reason for regarding as a primitive one. Prof. Garrod has seemingly appreciated this main characteristic of the pterylosis, as the following quotation will show (Coll. Papers, p. 465):—" *Opisthocomus* is one of those birds in which the pterylosis is not so decisive of its affinities as in many cases, the reason being that so great an amount of the unfeathered spaces is protected by semiplumes. May not these semiplumes in many instances be degenerated feathers? This question has never been decided, so far as I am aware."

So much for the pterylosis of the adult bird.

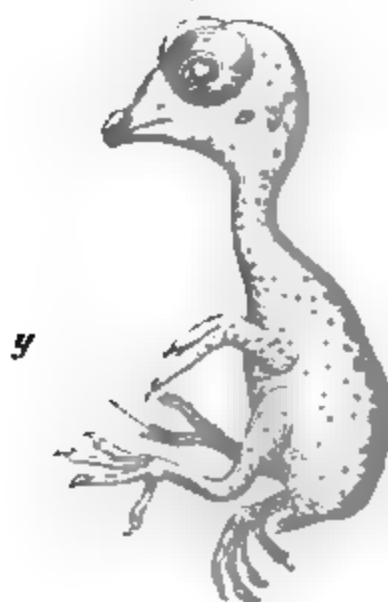
In the nestling the condition is much the same, but the down-feathers are more numerous.

The feathering of the young chick was examined with great care, in order, if possible, to throw some light upon the question of the apparent continuity of the feathering. I find that the ventral *apterion* is as conspicuously developed as in

* *Loc. cit.* p. 110 (Coll. Papers, p. 465).

the adult bird, hence the effect of wear during the lifetime is obviously not sufficient to account for its presence. On the dorsal surface the feathering appeared to be quite uniform,

Fig. 3.

*Opisthocomus cristatus.*

Young Chick, showing dorsal and ventral feather-tracts : *y*, yolk-sac.

though sparse ; there was no distinct spinal apterion to be made out ; in these young chicks the ventral feathering was much closer than the dorsal.

Now the continuous feathering of the adult in the Ostrich* and Apteryx† is not met with in the chick, which shows in both cases distinct apteria ; this fact is further evidence in favour of regarding the flightless Struthious birds as the immediate descendants of birds with wings developed for flying. Nitzsch‡ explains the presence of apteria as an assistance to the free movements of the limbs, which would be hampered by a dense and uninterrupted plumage, and also considers them to be partly due to the large size of the contour-feathers. It seems likely, however, that in the primitive bird the feathering was uniform and probably of a downy character ;

* Miss B. Lindsay, "On the Avian Sternum," P. Z. S. 1885, p. 684, pl. xliii. figs. 6, 7.

† T. J. Parker, "On the Development of *Apteryx*," Proc. Roy. Soc. vol. xliii. p. 482.

‡ 'Pterylography,' Engl. ed., p. 17.

this may account for the absence of traces of body-feathering in *Archæopteryx*; the feathering may, in fact, have been very like that of existing Struthious birds; the increase in the power of flight led, on Nitzsch's hypothesis, to the formation of apteria. It seems to me possible that the same freedom of movement of the wings may also have been obtained by a scattered condition of the contour-feathers, while the view of Nitzsch that "the interrupted feather-clothing must be deduced, as a necessity, from the great size of the contour-feathers," is also quite in harmony with this supposition.

The contour-feathers of *Opisthocomus* are furnished with an *aftershaft*.

The remiges are developed as down-feathers in the youngest chicks, and their number corresponds with that of the adult bird (*i. e.*, 19); the tectrices dorsales were also visible in the early stages, when no other feathers, on the wing, except the remiges, were present. There was no evidence in later stages of these embryonic remiges being *replaced* by a subsequently developed series of remiges. These facts confirm, so far, the conclusions of Landois* and Davies†, that the down-feathers do not form a separate embryonic feathering (having a relation to the permanent feathering analogous to that of milk-teeth to permanent dentition), but are merely the free extremities of the contour-feathers. I may remark, however, that these gentlemen have omitted to call attention to the fact that Mr. A. D. Bartlett some 27 years ago showed reasons for making a similar statement ‡. He said (P. Z. S. 1861, p. 370):—"There is a beautiful example of the progressive growth from the first down to the perfect feathers to be seen on the young of this bird [*Grus montignesia*]. I have in many birds observed this, but not to so great an extent. It appears that the first down is not thrown off, but continues to grow longer, until the perfect feather is developed, having the

* "Das Dunennestkleid der Vögel besteht nicht aus Dunen," Zool. Anz. Bd. xi. p. 703.

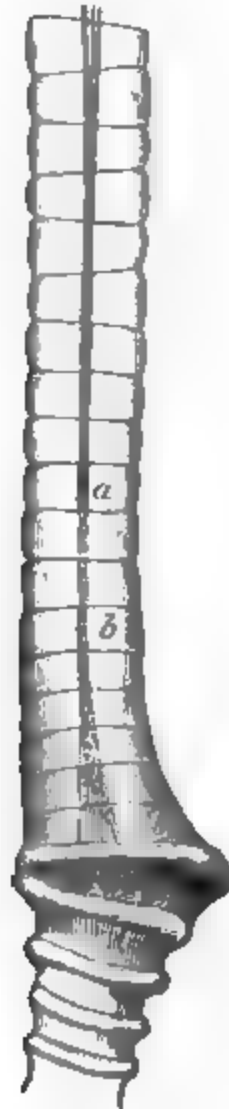
† "Beitrag zur Entwickl. der Feder," Morph. Jahrb. Bd. iv. p. 369.

‡ "Notes on the Breeding and Rearing of the Chinese Crane (*Grus montignesia*) in the Society's Gardens," P. Z. S. 1861, p. 369.

early down attached to its point; this condition is to be seen not only upon the points of the primaries, but also on the ends of the feathers of the entire plumage." These conclusions seem to be identical with those of Dr. Landois and Mr. Davies; it must be admitted, however, that the title of Mr. Bartlett's paper is a little misleading in this respect, and would hardly suggest that the paper contained the important morphological facts referred to.

Syrinx.—This organ has been described by Johannes Müller*, and more recently, as well as more fully, by

Fig. 4.



Syrinx of *Opisthocomus cristatus*.

a, insertion of syringeal muscle; b, fibrous band continuous with syringeal muscle.

* Ber. Akad. Wiss. Berlin, 1841, p. 177.

Garrod*. The incorrect figure of this organ given by Young has been already referred to (p. 285).

The principal features in the structure of the syrinx are illustrated in Garrod's figure; but I find that the box formed by the union of the last tracheal and upper bronchial rings may be composed of more elements than are represented in his fig. 1. There is, in fact, some variation in the adults examined by me in the number of rings which unite to form this box (p. 291); this part of the windpipe is not unlike the corresponding region of *Indicator*†. The syringeal muscles (intrinsic) end, as Garrod shows, upon one of the free tracheal rings immediately preceding the fused rings. In Garrod's figure the muscle is continued into a tissue which is differently shaded, and presumably represents a fibrous band; this is inserted into the following ring. In some specimens examined by me the fibrous continuation of the muscles extends along the windpipe as far as the first or second bronchial ring; the fibrous band is composed of a very tough tissue. It appears to me to be legitimate to compare this with a band of fibroid tissue which occupies the place of the absent syringeal muscles in *Balæniceps*‡, and which I have considered to be the degenerate equivalent of those muscles. In *Opisthocomus* it will be noticed that the fibrous continuations of the syringeal muscles are attached to the bronchial semiring, to which it is most usual in birds to find these muscles attached. It is probable that, as the last tracheal and first bronchial rings become consolidated into the box-like structure of the adult, the atrophy of the muscle commences below the top of the box. The movements of the first bronchial rings could be as easily effected by the attachment of the muscle to the top of the box, and

* Coll. Papers, p. 466.

† Garrod, "Notes on the Anatomy of *Indicator major*," P. Z. S. 1878, p. 935, and Coll. Papers, p. 464, fig. 3.

‡ "On Certain Points in the Structure of *Balæniceps* bearing upon its Affinities," P. Z. S. 1888, p. 284. Prof. Parker ("On the Systematic Position of the Crested Screamer," P. Z. S. 1863, p. 514) has observed that in that bird the intrinsic muscles of the syrinx end in a fan-shaped fascia.

thus the necessity for a prolongation of the muscle further than this point disappears. I have mentioned above that the terminal "box" of the trachea is sometimes composed of a larger number of elements than is allowed by Garrod. This opinion results from the study of a young chick, in which the last tracheal rings are free, and the syrinx (see fig. 4) has altogether a more "typical" structure than that of the adult. The muscle is seen to terminate on *the 8th ring before the first bronchial*. This appears to show that the tracheal box is formed by the fusion of eight tracheal and bronchial rings; the syringeal muscle in the chick is continued into a fibrous band (fig. 4 *b*), the relations of which are similar to those of the adult.

XXVII.—*Note on Emberiza cioides, Brandt.*

By H. B. TRISTRAM, D.D., F.R.S.

(Plate X.)

ATTENTION has lately been drawn to the Eastern Palæarctic Bunting, *Emberiza cioides*, Brandt, Bull. Acad. Sci. St. Pét. i. p. 363 (1843), by the fact that our Member, Mr. R. W. Chase, of Birmingham, has lately obtained at Flamborough a specimen of this species. This specimen is stated to have been taken there in October 1887, and to have been mounted from the flesh by Matthew Bailey, who did not know the bird, and was quite ignorant of the interest attaching to it. The species has considerable seasonal variation, and this specimen agrees exactly with one in my own collection obtained near Lake Baikal in the month of October. So far, therefore, the evidence of its occurrence at Flamborough seems satisfactory. But it is curious that the bird has never been met with before in Europe, not even in that resort of unwonted stragglers, Heligoland, nor even in Western Siberia.

The confusion in the nomenclature of this Bunting is almost inextricable. First noticed by Pallas, it was by him erroneously identified with *Emberiza cia*, L. It is evident

that Pallas had never seen the true *E. cia*, for his description of the present bird, "found about the Yen-esay and Daouria," is unmistakable and most accurate, and he concludes by the note "Auctorum descriptiones omnes præter brevem *Linnaëanam*, ita vitiosæ, ut ægre in iis *Ciam* nostram agnoscas," a remark which we must thoroughly endorse. After Brandt's definition of *Emberiza cioides* had been published, in 1843, Temminck and Schlegel identified it with a Japanese species, which they figured (Faun. Jap. pl. 58) under the same name. Bonaparte first detected the mistake, and in 1850 described the Japanese bird as *E. ciopsis* (Consp. i. p. 466), though it is difficult to understand how, with specimens before him, he could make the remark, "Ab *E. cia* ex Europ. vix distincta," the differences, especially the chestnut head without any white striations, being marked and constant. *E. cioides* appears to have a somewhat limited range. It has never been recorded from Japan, it is common about Lake Baikal, and was found abundant by Mr. Seebohm at Krasnoyarsk. The Chinese form of this species has been separated by several writers under the name of *E. castaneiceps*, Moore (P. Z. S. 1855, p. 215); but with a good series before me, both from Siberia and China, I find it difficult to admit a specific distinction which consists only in size, as though Siberian specimens are certainly longer in the wing than Chinese, the longest-winged specimen from China exceeds the shortest-winged from Siberia. The absence of the tiny black spot on the chin, relied on by Mr. Sharpe (Cat. vol. xii. p. 544), is not a reliable distinction, as I possess Chinese specimens with it and Siberian ones without it; but the former appear always to have a less amount of white on the outer tail-feathers than the northern form.

No figure has ever been published of *E. cioides*, which appears to me to have a claim to be thus illustrated, especially as I presume it will now be inserted in the British lists. I have therefore the pleasure of adding to this note a portrait of Mr. Keulemans of an adult male of this species (Plate X.), from a specimen in Mr. Seebohm's collection, obtained at Krasnoyarsk on Feb. 25th, 1878.

XXVIII.—*Remarks on Brandt's Siberian Bunting* (*Emberiza cioides*). By HENRY SEEBOHM, F.L.S., F.G.S.

OUR Editor having requested me to furnish him with some account of Brandt's Siberian Bunting (*Emberiza cioides*), I have had great pleasure in putting together my notes on this species. Brandt's Siberian Bunting is a very common bird in the eastern half of Southern Siberia, but it is not an Arctic species. I did not meet with it in the valley of the Yenesay during the several weeks which I spent on the Arctic Circle, where I found the nests of the Little Bunting (*Emberiza pusilla*), and also shot examples of the Reed Bunting (*Emberiza schæniclus*), the Little Reed Bunting (*Emberiza passerina*), the Rustic Bunting (*Emberiza rustica*), the Pine Bunting (*Emberiza leucocephala*), and the Yellow-breasted Bunting (*Emberiza aureola*), to say nothing of the Snow Bunting and the Lapland Bunting, which passed through on migration to breed on the tundras beyond the limits of forest-growth. Brandt's Siberian Bunting is neither a bird of the tundra, nor of the forest, nor of the steppe, but of the bare places on the rocky hill-sides and the banks of stony streams. I found it extremely abundant about ten degrees south of the Arctic Circle, on the rough bare hills near Krasnoyarsk. It was generally to be seen perched on the top of some tall plant on the roadside. It is the eastern representative of the Meadow Bunting (*Emberiza cia*), but appears to be quite distinct from that species. The range of the Meadow Bunting extends from Spain, across Southern Europe and Turkestan to South-west Siberia, as far east as Lake Saissan. From the last-mentioned locality I have an example collected by General Prjevalski, which does not differ from examples that I collected in Greece. But, although the Meadow Bunting does not seem to intergrade with Brandt's Siberian Bunting, the latter species unquestionably intergrades with Giglioli's Chinese Bunting (*Emberiza castaneiceps*), which is regarded as a distinct species by Mr. Sharpe in the 'Catalogue of the Birds in the British Museum.' The characters relied upon are:—(a) that it is smaller; but my Yenesay examples

vary in the length of wing of the males from 3·5 to 3·1 inches, and those in the Swinhoe collection from China vary from 3·1 to 2·9 inches: (*b*) that it wants the tiny black spot on the chin; but more than half of my Yenesay examples want it also, though it is present in none of my Chinese skins: (*c*) that it has much less white on the outer tail-feathers; but this assertion is only true on an average, some Chinese examples having more white on the outer tail-feathers than a selected few of the Yenesay skins. The Chinese form can therefore only claim to be subspecifically distinct from the Siberian form under the name of *Emberiza cioides castaneiceps*.

The special interest attaching to this bird at the present moment is that an example exhibited at a recent meeting of the Zoological Society was purchased by Mr. Robert W. Chase from a Mr. Matthew Bailey, who informed him that he had stuffed it from the flesh, and that it had been obtained by a fisherman at Flamborough, south of the headland, in October 1887. This specimen is in autumn plumage and is a male, but from the small extent of the chestnut on the breast evidently not a very old one. The wing and tail measure each exactly 3 inches; there is no black spot on the chin, and the amount of white on the outside tail-feathers is so nearly intermediate between the two extremes that it would pass for either of them. On the whole, however, the specimen approaches rather nearer to *Emberiza cioides castaneiceps* than to the typical form.

XXIX.—*Notes on some New-Zealand Birds.*

By T. W. KIRK, F.R.M.S.

1. RHIPIDURA FULIGINOSA, Sparrm. Black Fantail. "Ti-wakawaki."

This bird is generally believed to be confined to the South Island; there are, however, several well-authenticated records of its capture in the north. A specimen was quite recently shot at Levin, a new township on the Wellington

and Manawatu Railway Company's land, and was presented to the Colonial Museum by Mr. Charles Gillespie.

I have been informed by a settler in the Manawatu district that the season before last a pair of these birds nested in the bush at the back of his property, and successfully reared their brood. He is positive as to the species. This would seem to show that they are not quite so scarce in the North Island as is usually supposed, even if they are not to be deemed indigenous.

2. *CARPOPHAGA NOVÆ-ZEALANDIÆ*. Wood Pigeon. "Kuku, Kereru."

I have yet another instance of abnormal colouring of this magnificent bird to record. The specimen was shot at Kaikoura in June 1887, and presented to the Colonial Museum by Mr. H. Inglis. The following is a description of it:—Head, neck, and breast normal colour, but of a duller shade. Hind neck and front portion of scapulars and wing-coverts rich brown, profusely interspersed with white (the body of each feather is quite white, but broadly tipped with rich chocolate-brown, which gives the colour to those parts); hind portions of scapulars and wing-coverts white, the feathers in some places tinged and edged with slaty grey; shafts of feathers deep brown, almost black. Wings slaty grey, much blotched with white, the feathers in most instances edged with coppery green, shafts normal colour. Rump white, but bluish-grey feathers are profusely intermixed. Tail-feathers white, but margined all round with bluish black, shafts black; beneath, these feathers are white, but so thickly spotted with brown as to appear of that colour; the two outer shafts are nearly white. Abdomen and lower tail-coverts white. Sides and lining of wings pale silvery grey, in places almost white. Beak and feet normal colour.

3. *LOBIVANELLUS LOBATUS*. Wattled Plover.

In a previous paper (*Ibis*, 1888, p. 45) I recorded the occurrence of the Masked Plover (*L. personatus*) in New Zealand. The identification was made from a drawing and description supplied to me, but I have since had an opportunity of examin-

ing the specimen which Mr. Drew, in whose possession it is, kindly brought to Wellington for my inspection. I find that the previous identification was incorrect, and that the species is really *L. lobatus*, the "Wattled Plover;" I therefore hasten to correct the mistake. The two species are very similar, the most striking difference being the amount of black on the neck, which was not sufficiently shown in the sketch. This species is called the "Alarm Bird" by the settlers in some parts of New South Wales, on account of its habit, when disturbed, of rising in the air, flying about excitedly, and screaming so loudly that every creature within reach of its cry is on the alert.

4. *CHÆTURA CAUDACUTA*. Spine-tailed Swift. Needle-tailed Swallow.

Mr. Drew also brought with him a very good specimen of this bird. It was shot at Manaia, Hawera County, in March 1888, and was given to the present owner by Mr. Budge. This latest visitor is a female, as proved by dissection, the only difference between the sexes being that the male is rather larger than his mate. This species has a wide range; it is said to breed under the snow-line in the Himalayas; it was found by Von Schrenck in Amoorland; it has been captured in England, is common in Australia, and has now been taken in New Zealand. Large flocks visit the eastern parts of Australia and Tasmania in the summer, but only stay a short time. It is probable that our specimen was merely an exhausted straggler from one of these flocks. It agrees well with the description given by Gould:—"Crown of head, back of neck, and ear-coverts deep shining green, strongly tinged with brown; a small space immediately before the eye deep velvety black; band cross the forehead, throat, inner webs of the secondaries nearest the back, a patch on the lower part of the flanks, and the under tail-coverts white; wings and tail deep shining green, with purple reflexions; centre of the back greyish brown, becoming darker towards the rump; chest and abdomen dark clove-brown."

Mr. Gould makes the following remarks with regard to the enormous powers of flight possessed by this bird:—"The keel or breast-bone of this species is more than ordinarily deep, and the pectoral muscles more developed than in any bird of its weight with which I am acquainted. Its whole form is especially and beautifully adapted for extended flights, hence it readily passes from one part of the world to another, and, if so disposed, may be engaged in hawking for flies on the continent of Australia at one hour, and in the next be similarly employed in Tasmania."

5. PHALACROCORAX PUNCTATUS. Spotted Shag.

I have already published (*Ibis*, 1888, p. 44) a description by Mr. J. C. McLean of the nesting of this species near Cape Kidnappers. He has since forwarded me an egg, taken from the nest by himself. It measures $2\frac{8}{10}$ inches in length by $1\frac{8}{10}$ in greatest diameter.

XXX.—*Notes on the Spotted Shag* (*Phalacrocorax punctatus*).

By J. C. McLEAN.

IN the January part of 'The Ibis' for last year (*Ibis*, 1888, p. 42) appeared a paper, by Mr. T. W. Kirk, entitled "Notes on the Birds of New Zealand," in which is a note of the occurrence and breeding of the Spotted Shag (*Phalacrocorax punctatus*) in the North Island of New Zealand.

Mr. Kirk quotes parts of Sir Walter Buller's remarks to the effect that this species is plentiful in the South Island, but that only a few instances are known of its occurrence in the North Island, and that three is the usual number of eggs laid. Mr. Kirk points out that I had never seen more than *two* eggs in a nest. At that time I had only once visited the nests when there were eggs and young. Since then, however, I have had better opportunities for visiting and observing this small colony or "Shaggery," and have taken more eggs. I was very fortunate last season (1888), and have some interesting facts to record.

It was in December 1881 that I first visited Cape Kid-

nappers and saw these beautiful birds ; and, if I remember rightly, there were only two nests, one of which contained eggs, for, although I could not get to the nests, I could see an egg showing over the edge of one of them

I revisited the spot on December 23, 1885, and found six nests—five on the ledge where they were in 1881 and one on the opposite side of the rock. One of the five contained two eggs, three had each two young ones, and the fifth was empty. The nest on the opposite side contained two eggs, but was out of my reach.

On December 27, 1886, I was surprised to find neither eggs nor young, although the old birds were at the nests. There were seven nests, one of which had not been used or, rather, repaired, as the others had.

On December 17, 1887, there were five nests on the ledge, only one of which contained anything—an addled egg—and two on the opposite side, one containing three eggs, and the other two young and an egg. On another rock were two empty nests, and on another two containing young birds. On the rock on which was the egg there were a number of fully-fledged young, that crowded to one end of the rock on my approach, and then dropped into the sea. Altogether, old and young, there were about twenty birds of this species about the reef.

My first trip there last season was on December 21, 1888. Mr. A. Hamilton had visited the Shags on November 9, and had found the nests to contain young birds covered with down, and therefore not long hatched. The tide was coming in and I had very little time ; so, after getting thoroughly wet while going out to the rock, I climbed up, expecting to find young birds in the nests. Imagine my surprise when I found each nest to contain eggs. There were eight nests on the ledge, but the two that last season were on the opposite side were gone—ledge and all. I took three clutches, made a few notes, and made for dry land, which I reached in a soaked condition. On another rock, to which I could not get, were three nests on a small ledge.

The nests, eight in number, were placed about two feet

apart, on a ledge some fifteen inches wide and twenty-five feet long, that ran along one side of the rock about three feet from the top and eight from the base. The rock measures about forty feet by eighteen and is about twelve feet high ; it is surrounded by water, and is very difficult of access.

The first nest contained three eggs, the second three, the third two, the fourth three, the fifth two, the sixth two, the seventh one, and the eighth two. It will therefore be seen that four nests each contained two eggs, three three, and one one. The eggs I took were very slightly incubated.

The nests are repaired every year for each laying, the old nests being used as a foundation. When recently finished, the different coloured seaweeds used give the nests a very pretty appearance. They are far smaller than the nests of the Black Shag (*Ph. novæ-hollandiæ*) and are more finely built. They are substantially built of twigs and coarse seaweed, and are neatly repaired and lined with small twigs, fibrous roots, tufts of grass, and fine seaweeds, with an occasional wing- or tail-feather of the parent bird. The nest measures as follows :—Width at base 20 inches, width of cavity 8, depth of nest 4, depth of cavity 1·5.

The egg is elliptical in shape and, when freshly laid, is of a pale bluish green clouded with chalky white ; it measures in length 2·2 inches, and in breadth 1·5. When blown and held to the light the interior shows a deep sea-green. After being in the nests some time the eggs become very much stained and dirty. The cloudy appearance is due to the chalky substance that may be seen on all Shags' eggs. In some places the eggs are scratched and the chalky substance chipped off, as if by the point of the bird's bill, or the claws, when turning the eggs in the nest. They are slightly smaller than those of the Black Shag, and vary slightly in size. Of eight eggs the largest measures 2·25 inches by 1·5, and the smallest 2·1 by 1·4 ; the largest and smallest eggs of one clutch measure 2·25 by 1·5 and 2·15 by 1·4 respectively, and of another clutch 2·2 by 1·5 and 2·1 by 1·4.

On January 2, 1889, the fourth and fifth nests contained young birds of a sooty black colour, without a sign of down. In the other nests the e

As Mr. Hamilton saw young birds in the nests on November 9, and I found each nest containing eggs on December 21 following, it is quite evident that the Spotted Shag breeds twice in the same season.

In this part of New Zealand 1s. 6d. is paid by the Acclimatisation Society for each pair of feet of the Black Shag (*Ph. novæ-hollandiæ*), as this species is reputed to destroy the imported fish. Now, a Shag is a Shag with the general public, irrespective of species; in fact, according to them, a Gannet (*Dysporus serrator*) is, as shown by the feet sent in as those of the Black Shag! However, it is to be hoped that this colony will not be "wiped out," as has been the case with several "Shaggeries" of the Black Shag and of the White-throated Shag that I once knew of.

XXXI.—On an apparently undescribed Species of Owl from the Liu Kiu (or Loo Choo) Islands, proposed to be called *Scops pryeri*. By JOHN HENRY GURNEY.

MR. LEONHARD STEJNEGER has satisfactorily shown, in the 'Proceedings of the United States National Museum' for 1886, p. 639, that the Scops Owl described by the late Mr. Cassin under the title of "*Ephialtes elegans*" is a good and distinct species, resident in the Liu Kiu Islands.

I am indebted to the kindness of Mr. Henry Seebohm for the opportunity of examining a specimen in his collection of this rare species, and agree with Mr. Stejneger's conclusion as to its specific distinctness.

This, however, is not the only Scops Owl to be found in the Liu Kiu group, and my present object is to describe two specimens of the second Liu Kiu species, which were obtained from that locality by the late Mr. Pryer, in commemoration of whom, I would propose for this hitherto undescribed Owl the name of *Scops pryeri*.

Of the two specimens which I have examined, one is an adult, now preserved in the Norwich Museum, the other a young bird which I have no doubt had left the nest, but

which retains portion of its nestling-plumage ; this younger specimen is in the collection of Mr. Seebohm, who has kindly lent it to me for examination, and to whom I am also indebted for calling my attention to the distinctness of the present species from its congener, *Scops elegans*.

Both these specimens are believed to have been obtained in the island of Okinawasima, in the Central Liu Kiu Group, and both bear labels in the late Mr. Pryer's handwriting, inscribed as follows :—" Rynkyn Naba, June (Aug.), '86."

Mr. Seebohm's specimen of *Scops elegans* also bears a label in Mr. Pryer's handwriting to the following effect :—" Rynkyn, Dec. (Jan.), '87."

I subjoin the principal measurements in inches and decimals of the two specimens of *Scops pryeri*, and also, for comparison, those of the above example of *Scops elegans*.

	Culmen with cere.	Bristly feathers round the bill.	Ear-tufts.	Wing.	Tarsus.	Middle toe, <i>s. u.</i>
<i>Scops elegans</i> , ad.	0·65	0·60	1·15	6·80	1·20	0·75
<i>Scops pryeri</i> , ad.	1·05	0·90	imperfect	6·70	1·50	0·75
Do., imm.	0·90	1·05	1·05	7·50	1·50	0·75

In the specimen of *Scops elegans* the 3rd and 4th primaries are the longest and equal, the 5th being decidedly shorter ; but in both those of *Scops pryeri* the 4th is the longest, the 3rd and 5th being equal and only very slightly shorter than the 4th.

The adult specimen of *Scops pryeri* was moulting when killed, which perhaps accounts for the wing being shorter than in the immature specimen, as the feathers may probably not have attained their full length.

Scops pryeri is readily distinguishable from *Scops elegans* by the larger size of the bill, by the tarsi being thickly feathered to the base of the toes, whilst in *S. elegans* the lower part of the tarsus is bare for one fifth of an inch, and also by the much coarser and less minute character of the vermiculations on its plumage both above and below.

The following is a description of the coloration and markings of the adult specimen of *Scops pryeri* :—

The feathers on the central portion of the crown of the head and on the nape are blackish brown freckled with dark rufous brown, the sides of the crown and of the nape are a paler rufous, barred and tipped with blackish brown; the colour of the cheeks and lores resembles that of the centre of the crown; the interscapulars are dark brown irregularly cross-barred with paler brown, but both shades tinged with dull rufous; the least wing-coverts are dark brown, sparsely varied with small spots of a paler rufous brown; the median and greater coverts, and also the scapulars, are similarly marbled with two shades of rufous brown, but with the paler rufous predominating, especially on the external edge of the outer row of scapulars, where the feathers are a clear luteous brown scantily traversed towards the tip with dark brown; all the wing-feathers, including the winglet, are dark brown, alternating on the outer web with pale rufescent buff in a regularly disposed pattern of square notches, and cross-barred on the inner web with two shades of brown, the lighter bars becoming tinged with pale luteous towards the edge of the feathers; the lower part of the back and the upper tail-coverts resemble the interscapulars in their marking and coloration; the rectrices are dark brown cross-barred with paler brown, and the central pair exhibit seven such pale bars and a pale tip.

The entire under surface of the body from the chin, which is whitish and immaculate, to the vent is rich rufous brown, each feather having a conspicuous and somewhat broad shaft-mark of blackish brown and several minute irregular cross bars a shade less dark than the shaft-marks; the under wing-coverts are pale fulvous and unspotted; the tarsi are rufous brown, slightly dotted with a few spots of darker brown.

The immature specimen retains its nestling-dress on the crown of the head, the nape, the breast, and portions of the abdomen, where the colouring is less rich and the markings less distinct than in the adult bird, which it closely resembles

elsewhere, having, with the exception of the parts above mentioned, become fully feathered; it differs, however, from the adult in wanting the clear luteous spaces on the outer side of the scapulars, and in having the exterior edge of the under wing-coverts variegated with blackish brown.

The ear-tufts, which are imperfect in the adult specimen, are newly grown in the younger bird, and exhibit two shades of rufous brown, the darker and lighter alternating.

The central rectrices exhibit one more light cross bar than exists in the tail of the adult.

XXXII.—*A List of the Birds of Cyprus.*

By LORD LILFORD.

DR. F. H. H. GUILLEMARD's two most interesting articles on Cyprus (*Ibis*, 1888, p. 94, and 1889, p. 206) have left me little to record; but as I think that a systematic list of the birds met with in the island by him, Mr. W. Pearse, and myself may be of some service to future collectors, I offer the following notes to the readers of 'The Ibis' in the hope that the list may be, as I am confident that it can be, very much augmented. With regard to the specimens collected by Mr. Pearse, I must mention that many of the names on the labels attached to the skins are in Greek characters, and often almost illegible, and as I never received any letter or explanatory notes from him during his unfortunate stay in Cyprus, the principal value of his specimens is the proof of the occurrence of their species in that locality. I shall specify the instances in which a species was obtained or met with by only one of us, by the initial G., P., or L., at the conclusion of the paragraph relating to it.

I must take this opportunity of recording my grateful acknowledgments to Mr. H. Seebohm, Mr. R. B. Sharpe, Dr. A. Günther, and Lieut.-Colonel Irby, for their assistance in identifications, and for certain observations upon these collections, and most of all to Dr. Guillemard for his trouble in collecting and for the beautiful condition of the specimens preserved by him.

In the following list I have been chiefly guided by my own predilections—I should perhaps say, prejudices—in the matter of nomenclature, and have not gone through the useless trouble of appending the names of authorities, my only object being to convey clearly to the mind of my readers the species of which I treat, and to avoid profitless discussion on precedence. But to assist reference to Dr. Guillemard's articles, I make use of the specific names adopted by him, without necessarily, thereby, implying my approval of them in all cases. I append an asterisk to the species of which we obtained specimens.

1. BLACK VULTURE. *Vultur monachus*.

Guillemard obtained a full-grown young bird of this species near Morphou in May, 1887; it was accompanied by an adult. I did not meet with this Vulture in Cyprus, and am inclined to consider it as uncommon there, very probably an occasional visitor from Asia Minor.

An immature specimen of this bird was sent to the Zoological Gardens, Regent's Park, from Cyprus, by Captain A. Alexander, R.E., in the spring of 1880, and lived there for several years. I may perhaps be allowed to mention here that I have never met with this species in what I consider to be its fully adult plumage, except in the Sierra de Guadarrama, Old Castile. All the coloured figures with which I am acquainted represent more or less immature individuals. *. G.

2. GRIFFON VULTURE. *Gyps fulvus*.

We found this Vulture in considerable numbers on the sea-cliffs between Cape Zephgari and Cape Gato, where we have reason to believe that several pairs habitually breed, and I frequently recognized the Griffon sailing high in the air in the neighbourhood of the coast near Famagusta and Salamis. Guillemard found this species to be frequent in various districts of the island, and obtained young birds from the neighbourhood of Akanthu: he also brought home an egg of the Griffon, taken in the northern range of mountains. *.

Neophron percnopterus is recorded as occurring in Cyprus by Unger and Kotschy †, but was not met with by any of us.

3. IMPERIAL EAGLE. *Aquila heliaca* ‡.

I did not identify this or, indeed, any other species of Eagle during my stay on the coasts of Cyprus; but I was offered a fresh, unblown Eagle's egg at Trikhomo in April, 1875, which, as I was then informed, had been taken in that neighbourhood a few days before I saw it, and was, I may confidently state, produced by an Eagle of this species. Guillemard found the head of an Imperial Eagle hanging up at a cottage door along with those of a Demoiselle Crane and a Buff-backed Egret, during his first expedition to Cyprus; this Eagle's head was submitted by me to Mr. John Henry Gurney, Sen., who identified it as above. Guillemard mentions having frequently seen Eagles in Cyprus at too great a distance for identification. "West Kent" (= Major Jones, late of the 50th Foot) states in the 'Field' of May 11th, 1889, that the White-tailed Eagle (*Haliaëtus albicilla*) is sometimes met with in Cyprus. G.

4. BONELLI'S EAGLE. *Nisaetus fasciatus*.

Guillemard brought home a young female of this species killed by a native sportsman at some cliffs within a few miles of the old Phœnician copper-mines at Limni, on the bay of Chrysokkou, near the north-western extremity of Cyprus. The date on the label attached to this specimen is June 4, 1887, a very late period at which to find some of the nestling down still attached, as it is in this instance, to a Bonelli's Eagle. *. G.

5. SAKER. *Falco sacer*.

I received an adult male of this species from Pearse, labelled Beila, October 14, 1878. Neither Guillemard nor I even met with the Saker in Cyprus. *. P.

† 'Die Insel Cypern.' Wien, 1865.

‡ [There is an Eagle now living in the Zoological Society's Gardens, presented by Col. E. L. Fraser, June 17th, 1887, "from Cyprus." It has been hitherto labelled *Aquila navioides*, but is probably *A. heliaca*.—P. L. S.]

6. PEREGRINE FALCON. *Falco peregrinus*.

Guillemard bought a female of this species in first year's plumage alive at Famagusta, in February 1888, and shortly afterwards obtained a very fine adult of the same sex. The only peregrinoid Falcon that I saw in Cyprus was near Salamis, on 1st of May, 1875; it passed within a few yards of me as I was riding, in pelting rain, and was, I feel sure, one of the small race, *F. punicus*. From experience in other parts of the Mediterranean, I consider it probable that this form breeds in Cyprus and that the typical *F. peregrinus* is a winter visitor to the island, as we know it to be to Egypt and Andalucia. *. G.

7. MERLIN. *Falco æsalon*.

I received a poor specimen in immature plumage from Pearse in 1879, but have unfortunately lost it, and cannot therefore give any details as to sex, date, or locality. A very perfect adult male specimen obtained by Guillemard is labelled, Famagusta, March 20, 1888. I saw one or two Merlins near that town in April 1875. *.

8. LA MARMORA'S FALCON. *Falco eleonoræ*.

I was much pleased to find several pairs of this species—my old Sardinian acquaintance—sailing about the cliffs near Cape Gato, in company with Griffon Vultures, on May 8th, 1875. Several passed within easy gunshot range, but I did not fire at them, as there could be no mistake as to their species, and if I had killed one it would have fallen into the sea some 100 feet below me, and been lost. Guillemard found these Falcons at this same spot in March 1887, and killed one of them, which he was unable to recover, but brought home a very fine dark specimen, shot in the Akrotiri district in 1886 by an officer of the 49th Foot. *.

9. RED-LEGGED FALCON. *Falco vespertinus*.

I only met with this species on one occasion, at dusk, on May 6th, 1875, when, as we returned to our boat after a long day's ramble about the flats of the promontory of Akrotiri (the 'Glowworm' lying in Limasol Roads), a considerable number of these beautiful little Falcons suddenly appeared

hovering in all directions over the sandy plain at a short distance to the south of the town of Limasol. I contented myself with bagging a fine adult male for identification. It is remarkable that neither Guillemard nor Pearse should have obtained or, so far as I know, met with this Falcon; but Herr Müller (J. f. O. 1879, p. 386) speaks of having received from Cyprus a series of twelve specimens of this species, together with sets of its eggs. *. L.

10. COMMON KESTREL. *Falco tinnunculus*.

Common in all parts of the island visited by me in April and May 1875, but much less numerous than the following species. We took five eggs of this species from a nest in the wall of the ruined monastery of St. George on the Akrotiri promontory, on May 8th. As a specimen of this bird collected by Pearse bears date November, I presume that it is more or less resident in Cyprus. *.

11. LESSER KESTREL. *Falco cenchris*.

Exceedingly abundant, breeding principally in the holes and crannies of old walls, notably in those of the aqueduct that spans the road to Limasol at a short distance from Larnaca. Guillemard brought home many eggs of this species, and seems to have met with it as early as February on his first visit to Cyprus. *.

12. MARSH HARRIER. *Circus æruginosus*.

Tolerably common in the marshy districts, but not discovered breeding in Cyprus by us. *.

13. PALLID HARRIER. *Circus swainsoni*.

I several times observed a grey Harrier hunting over the plains near Salamis, but was unable to shoot, and thereby to identify it, though I have very little doubt that it belonged to this species. Pearse sent home a specimen labelled "Larnaca, Nov. 2, 1878;" the sex of this bird is not indicated, but I take it to be a male in first year's plumage; a fine adult male obtained by Guillemard is labelled "Piskopi, March 25, 1887," with the remark "Stomach solely filled with the common lizard." *.

14. SPARROW HAWK. *Accipiter nisus*.

Neither Guillemard nor I met with this species, but I have

one adult male collected by Pearse in 1879 and sent home without any label. *. P.

This concludes my very meagre list of diurnal Raptores actually obtained or identified by us in Cyprus; but Unger and Kotschy record the Goshawk, *Astur palumbarius*, and I feel little doubt that the only living specimen of the Long-legged Buzzard, *Buteo ferox*, ever seen by me was a bird that crossed our bows shortly after we made the land of Cyprus off Cape Blanco on our voyage from Crete, on April 14th, 1875. It is remarkable that I have no record of any species of Kite from Cyprus.

15. BARN OWL. *Strix flammea*.

I heard the well-known shriek of this bird both at Larnaca and Famagusta, and Guillemard mentions having seen two Barn Owls in captivity in the former town, that had been obtained there; but I agree in his opinion that the species is not abundant in Cyprus, and I have not a Cyprian specimen.

16. LONG-EARED OWL. *Asio otus*.

I have one skin of this bird, sent by Pearse, and labelled "♂. Lefka, 8.11.78." Neither Guillemard nor I met with the species in Cyprus. *. P.

17. SHORT-EARED OWL. *Asio brachyotus*.

I found this bird frequently in the open plains near Salamis and the Akrotiri district. Guillemard and Pearse also met with it, and I have several specimens. I was assured that this Owl breeds in Cyprus, but those shot by me and others of our party in April, 1875, showed no symptoms of being so engaged.

18. LITTLE OWL. *Athene noctua*.

Exceedingly common in all parts of the island, frequenting not only the inhabited towns, villages, and abundant ruins, but also the open scrub-grown country between the mountains and the sea. Mr. Seebohm remarks, in a letter, with regard to the specimens of this Owl collected by Pearse and myself in Cyprus: "a good series, all more or less interme-

diate between *Noctua noctua* and *Noctua glaux*." I do not recognize any specific difference between these two races, but these Little Owls from Cyprus are more sandy-coloured than average Spanish specimens. With regard to the Greek myth concerning Owls, referred to by Guillemard in his first article, 'Ibis,' 1888, p. 108: I had previously heard the story at Corfu, and cannot help thinking that, for reasons which I will give when treating of the next species on my list, he has put the saddle on the wrong horse in attributing the legend to the present bird. I have every reason to believe that the Little Owl is resident in Cyprus. Guillemard obtained many eggs of this species. *.

19. SCOPS OWL. *Scops giu*.

Very common in summer, principally inhabiting the neighbourhood of towns and villages, showing an evident preference for olive-trees, willows, and fruit-trees. As Pearse obtained specimens of this bird in November and December, it would appear that it, in some instances at all events, winters in Cyprus. Guillemard records the capture of a Scops Owl whilst sitting on its eggs in a hole in the roof of a house at Akanthu; this is the only instance that has hitherto come to my knowledge of this species nesting elsewhere than in hollow trees. My reasons for assigning the Greek legend, to which I have above referred, to this species instead of to the Little Owl are, that the notes of the latter bird could hardly be twisted into any resemblance to the words "τρῖς," "τ'σ'ρα"; the same may perhaps be said of the ordinary cry of the Scops Owl, which, however, is not badly represented by the "poo, pooep" attributed to the former species by Guillemard; be the fact as it may, the legend is referred by the Ionian Greeks to the present species. May not this myth have some connection with the utterance of Ophelia ('Hamlet,' Act. IV. sc. 5), "They say, the owl was a baker's daughter"? I was always convinced that in this line Shakespeare was referring to some well-known story, and not merely putting crazy words into the mouth of his distraught heroine; but it was only recently,

and quite by chance, that I came across a satisfactory explanation of this "dark saying" in a most entertaining work entitled 'The English Gipsies and their Language,' by Charles Leland. This author, in his introductory chapter, at p. 16, states that "the Gipsy term for an owl is the '*Maromengro's Chavi*,' or 'Baker's daughter,'" and he goes on to say that the Gipsies are all familiar with the "monkish legend" from which that name has been bestowed; Leland goes on to quote this legend, which is too long for insertion here.

All the specimens of the Scops Owl obtained by us in Cyprus are very dark in plumage when compared with average specimens from Andalusia, the Ionian Islands, and Malta; this is more especially remarkable in the skins obtained in late autumn and winter. *.

20. RED-BACKED SHRIKE. *Lanius collurio*.

Guillemard and Pearse both obtained specimens of this Shrike, which was not met with by me in Cyprus; the former states that he only found it in the north of the island and on Mount Troodos. I suppose that this Shrike must be a bird of double passage in the island, as Guillemard did not find it breeding, and Pearse obtained it in November. *.

21. WOODCHAT SHRIKE. *Lanius rufus*.

The only specimen of this bird from Cyprus in my possession is a male, which was shot near Galinópolis, in the district of Karpas, by one of my companions on April 26th, 1875. We never met with the Woodchat elsewhere in the island, and as it was not obtained by either Guillemard or Pearse, I take it to be a somewhat uncommon vernal migrant. *. L.

22. MASKED SHRIKE. *Lanius nubicus*.

Guillemard appears to have found the Masked Shrike not uncommon in various parts of Cyprus in May, and brought home a good series, with several nests and eggs. I did not meet with this bird, and it is not amongst the skins sent from the island by Pearse. *. G.

23. SPOTTED FLYCATCHER. *Muscicapa grisola*.

Tolerably common in April and May, 1875; as Guillemard

obtained specimens as late as the 25th of the latter month, there can, I think, be no doubt that this species breeds in Cyprus. *.

24. **PIED FLYCATCHER.** *Muscicapa atricapilla.*

Not very abundant. Guillemard met with it near Famagusta late in May, and I noticed it near Triklomo in April. *.

25. **DIPPER.** *Cinclus* sp. inc.

See Guillemard, Ibis, 1888, p. 119.

26. **GOLDEN ORIOLE.** *Oriolus galbula.*

Only once seen by me in Cyprus, but very well known in the island. Guillemard records it as plentiful on the route from Troodos to Papho towards the end of April, 1888. I infer from his remarks that the Oriole is much more abundant in some years than in others. *.

27. **PALESTINE BULBUL.** *Pycnonotus xanthopygius.*

Guillemard assigns a bird of this genus seen by him at a very short distance, at Larnaca, in April 1887, to this species, and is probably correct in so doing. I could not meet with a Bulbul in Cyprus, or indeed obtain any information on this subject; but that proves nothing, as, with few exceptions, to the Cypriote a bird is a bird and nothing more. Apathy on almost all subjects is the distinguishing trait of the peasantry of Cyprus.

28. **MISTLETOE THRUSH.** *Turdus viscivorus.*

We did not obtain a specimen of this Thrush in Cyprus, nor can I find it recorded by Guillemard in his articles in 'The Ibis,' but I see it in my list with the initial G. appended to its name, so that he must have observed it in the island; and I regret that his absence from England prevents my obtaining any particulars.

29. **SONG THRUSH.** *Turdus musicus.*

I was, I suppose, too late for this bird in Cyprus, and did not see one at all; Guillemard found it in great numbers in the Akrotiri district in January 1888, and was assured by the lighthouse-keeper at Cape Gato that they arrive there-

abouts at the beginning of the year, and leave again in March. I have, however, a specimen collected by Pearse, which bears the date, November 11, 1878, and I imagine that the Song Thrush is, in Cyprus, as in most of the islands of the Mediterranean, a bird of double passage, a few pairs perhaps remaining to breed, in the northern range, if anywhere. I have no record of the Redwing, *Turdus iliacus*, from Cyprus. *.

30. FIELDFARE. *Turdus pilaris*.

Guillemard obtained two females of this species from a small flock feeding in a wheat-field between Cape Greco and Famagusta, on February 16, 1888, and Pearse sent home a Fieldfare, without a label, killed in the winter of 1878–79. *.

31. BLACKBIRD. *Turdus merula*.

Apparently common during the winter months. Not met with by me except in the Karpas district in April 1875. I have three specimens collected by Guillemard in January and March 1888, and one by Pearse in November 1878. *.

32. BLUE ROCK THRUSH. *Monticola cyanus*.

Curiously enough, in a country so eminently adapted to its habits, this bird appears to be uncommon in Cyprus. I find no record of it in my own journal, and Guillemard only brought home two specimens, one shot at St. Ilarion on May 11, 1888, and the other amongst the ruins of Kurias in March 1887. *. G.

33. REDBREAST. *Erithacus rubecula*.

I did not meet with the Redbreast in Cyprus. Specimens obtained by Pearse and Guillemard are dated November 1878 and January 1888, respectively; it is probably only a winter visitor. *.

34. NIGHTINGALE. *Philomela lusciniæ*.

I only once heard the song of the Nightingale in Cyprus, this was at the so-called baths of Aphrodite near Papho on May 12, 1875. Guillemard records his first hearing it on May 4, 1887, at Akanthu, and its abundance at Lefka later in the same month. Two specimens collected by him are

labelled "Palæokhorio," Troodos range, April 14 & 16, 1888. I was assured that this species breeds abundantly in the mountain glens ; this statement is not improbable, but coming from the mouth of a Greek peasant, I must leave my readers to form their own judgment upon its accuracy. *.

35. WHITE-SPOTTED BLUETHROAT. *Cyanecula wolfi*.

Guillemard obtained a very fine adult male of this species at the freshwater lake near Famagusta on February 13, 1888, and saw others there. I have no other record of this bird from Cyprus. *. G.

36. REDSTART. *Ruticilla phænicurus*.

I noticed a few of this species in the Karpas district only, but did not obtain a specimen ; Guillemard, however, shot a good male at Agio Theodoro in that district, on April 26, 1888, and I received a pair from Pearse with (to me) illegible dates and localities. *.

37. EHRENBURG'S REDSTART. *Ruticilla mesoleuca*.

A very beautiful adult male brought home by Guillemard. is the only specimen that I possess from Cyprus. I cannot find any allusion to this bird in the 'Ibis' articles, but the label on this skin bears Cape Gata and the date March 11, 1887. *. G.

38. BLACK REDSTART. *Ruticilla titys*.

I imagine that this species is only to be met with in the low country during the winter months. Pearse sent home two females dated November 21, 1878, and two males obtained by Guillemard are respectively dated March 11, 1887, and January 4, 1888. I did not meet with the bird in April or May. *.

39. STONECHAT. *Saxicola rubicola*.

Not uncommon in the open country in the beginning of April, 1875. I cannot say whether this bird breeds in Cyprus, but it certainly passes the winter months in the island, as Guillemard and Pearse met with it in November, December, January, and March. *.

40. WHINCHAT. *Saxicola rubetra*.

Two specimens, both males, were obtained by Guillemard in April and May, 1887, at Akanthu and Larnaca respectively. *. G.

41. WHEATEAR. *Saxicola ænanthe*.

Common in all parts of the island suitable to its habits, in March and April, but I have no evidence of its breeding in Cyprus. *.

42. ISABELLINE CHAT. *Saxicola isabellina*.

Apparently very local, but not uncommon in March and April in the neighbourhood of Famagusta and the remains of Salamis. *.

43. RUSSET CHAT. *Saxicola stapazina*.

I only once recognized this Chat in Cyprus, and Guillemard only brought back one specimen, a fine adult male, shot at Agio Theodoro in the Karpas district, on March 23, 1888, so that I cannot think that it is ever very abundant in Cyprus. *.

44. ARABIAN CHAT. *Saxicola finschi*.

Guillemard met with this very handsome Chat near Cape Greco in February 1888, and apparently there only. It did not occur to me, and is not included in Pearce's collections. *. G.

45. EASTERN PIED CHAT. *Saxicola morio*.

This is the characteristic Chat of Cyprus; so far as my observation goes it mostly frequents the neighbourhood of towns, and is especially common near Larnaca. Guillemard obtained several nests with eggs, and brought home a specimen shot July 8, 1887, that can only have left the nest a few days previously. *.

46. HOODED CHAT. *Saxicola monacha*.

I observed two of these birds by the side of the road to Limasol about a mile to the westward of Larnaca on May 5, 1875, and sent my companion, Alberto Ruiz of Seville, at once in pursuit; he was fortunate enough to secure one of them, which proved to be an adult male. This was the only

occasion on which I saw this well-marked species, which was not met with by Guillemard or Pearse. *. L.

47. OLIVACEOUS WARBLER. *Hypolais elaica*.

Very abundant in almost all parts of the island. Guillemard seems to consider it the most common of the *Sylviidæ* of Cyprus, and I am inclined to agree with him; he obtained nests and eggs in abundance, and records April 21st as the earliest date upon which he met with the species. Two birds of the genus *Hypolais* obtained by me in Cyprus and marked by me as belonging to this species are so much larger than the average *H. elaica* that I for some time considered that I was mistaken, and that they were really *H. olivetorum*; but Mr. Seebohm, to whom they were submitted for examination, confirmed my original determination, and remarks on a specimen obtained by Pearse in August 1878:—"the East-European form." *.

48. Great Reed Warbler. *Acrocephalus turdoides*?

I have placed the name of this species in italics and added a mark of interrogation, for the reason that Dr. Günther found the remains of a bird, that I can only attribute to this species, in the stomach of a Viper, *Vipera xanthina*, sent home in spirits by Pearse; these remains are virtually "mummified" and very fragmentary, and as none of us met with this bird, I only include it as doubtful.

49. REED WARBLER. *Acrocephalus arundinaceus*.

Not very abundant; I obtained two specimens in the Karpas district towards the end of April, and Pearse met with it in October. *.

50. SEDGE WARBLER. *Acrocephalus phragmitis*.

The only specimens in my Cyprus collections are two obtained by Guillemard at the Vorokhlini Lake near Larnaca on May 20, 1887. *. G.

51. SAVI'S WARBLER. *Acrocephalus luscinioides*.

I shot the only specimen of this Warbler met with by us in Cyprus out of some green rushes at a spot that we used to designate as the Aqueduct Marsh, at a very short distance

from Larnaca, on April 21, 1875. I was beating the marsh for Crakes with a good retriever, when this bird rose at my feet, and I had the luck to secure it by a snap shot at a very short distance with no appreciable damage to its plumage. *. L.

52. CETTI'S WARBLER. *Sylvia cettii*.

I heard the well-known song of this bird once only in Cyprus, from a small tamarisk jungle near Limasol. I have two specimens from the island, one of which was obtained by Pearse at Chrysoroghiatisa on November 11, 1878, and the other by Guillemard at Lefka, May 23, 1887. *.

53. FANTAIL WARBLER. *Cisticola cursitans*.

Common in the wheat-lands bordering the marshes, but by no means so abundant as in Andalusia and Algeria. *.

54. WHITETHROAT. *Sylvia cinerea*.

I have three specimens of this bird from Cyprus, a female shot near Larnaca by one of our party on April 21, 1875, and two of the same sex obtained by Guillemard in the Karpas district on March 26, 1888. *.

55. LESSER WHITETHROAT. *Sylvia curruca*.

Common in the low country amongst gardens and shrubs in the neighbourhood of water in April. Two of Guillemard's specimens are dated respectively 21st and 29th March, 1888. *.

56. SUBALPINE WARBLER. *Sylvia subalpina*.

Guillemard records shooting one of this species near Agia Napa on March 7, 1888, but I cannot find the specimen, though I have no doubt as to its correct identification. *. G.

57. SPECTACLED WARBLER. *Sylvia conspicillata*.

With one exception, the specimens of this bird obtained by Guillemard are dated from 9th to 26th March, the exception bears the date of April 7. I noticed this species in Cyprus only near Trikhomo, and being in pursuit of Francolins, did not shoot at any of these little Warblers, which were pretty common in the scrubby plain at the foot of the hills. *.

58. RÜPPELL'S WARBLER. *Sylvia rueppelli*.

Guillemard obtained specimens of this bird near Piskopi in March 1887. I did not meet with it. *. G.

59. PALESTINE WARBLER. *Sylvia melanothorax*.

On first obtaining specimens of this little Warbler on the east coast of Cyprus, I was under the impression that I had at last found an undescribed bird of incontestable specific rank; but on the very day of my return to London from Cyprus the first number of Dresser's 'Birds of Europe' (then in course of publication) that I happened to take up destroyed my fond illusion, and showed me that Canon Tristram had anticipated me. I will only say that there is perhaps no brother of 'The Ibis' to whom I should be more willing to concede the honour due to a discovery in European ornithology than to this most energetic, original Member of the B. O. U.

I first met with this Warbler near Rhizokarpaso, in the so-called "horn" of Cyprus, on April 27, 1875; it was by no means rare there, and we afterwards found it to be more or less common in all parts of Cyprus that are covered with the scrubby vegetation that obtains in almost all the uncultivated districts near the sea. Pearse sent home many specimens, and Guillemard collected a good series in various parts of the island; one of his specimens is labelled Jerona, 1700 ft., so that this bird is by no means confined to the low-lying country in which I first met with it. In general habits it seemed to me that this Warbler united the characteristics of *Sylvia melanocephala* with some of those of *Melizophilus undatus*, now and then showing itself at the top of a bush, with a short clicking note, but generally hopping about in pursuit of insects in the dense lentiscus covert, and flitting with a jerky flight from bush to bush. In spite of long and patient watching I failed to discover a nest of this bird, and Guillemard was equally unsuccessful, the only eggs brought home by him from Cyprus that could possibly belong to this species are not identified, and, curiously enough, the nest that contains them is built in a spray of tamarisk which also contains a nest of *Hypolais eluica* or

some very closely allied species. The eggs in the first-mentioned nest may possibly be those of *Sylvia rueppelli*, but of course, being unidentified, are worthless. I notice that Guillemard mentions that he met with this species "from the sea-level up to 2000 feet or more in altitude," and in recording its occurrence near Lapethus, notes it as "anything but common on this northern side." I may mention that in passing through Turin on my journey homewards from Cyprus, I called upon Count T. Salvadori, who most kindly went through the Ornithological Museum with me, and showed me three unnamed specimens of this Warbler; if my memory serves me correctly, these birds were labelled as having been obtained in Syria and Asia Minor. I believe that this species is a permanent resident in Cyprus. *.

60. BLACK-HEADED WARBLER. *Sylvia melanocephala*.

By no means common, and apparently very local; I met with it in the Karpas district, and Guillemard obtained it near Cape Gato in March 1887. *.

61. ORPHEAN WARBLER. *Sylvia orphea*.

I obtained a fine male near Cape Zephgari on April 15, 1875, and have no other record of this species from Cyprus. *. L.

62. BLACKCAP. *Sylvia atricapilla*.

Exceedingly common in all suitable districts visited by me during my stay on the coast of Cyprus: Guillemard also found it in great abundance. *.

63. GARDEN WARBLER. *Sylvia hortensis*.

Although I cannot find a specimen of this bird in my Cyprus collections, I have a distinct recollection of seeing it and hearing its song near Papho in May, and Guillemard records having met with it on Troodos in June 1887. Before I visited Cyprus I had been assured that this species was taken in large numbers by the natives in the late summer, and pickled in sweet wine with bay-leaves for sale, under the name "Beccafico di Cipro;" but I could learn next to nothing on this subject during my stay, and if the practice

to which I have alluded is an existing fact, I am disposed to think that the Blackcap is the principal victim thereof.

64. WOOD WREN. *Phylloscopus sibilatrix*.

Common in most parts of the island in April and May in gardens and fruit-orchards. *.

65. WILLOW WREN. *Phylloscopus trochilus*.

Common, but not nearly so abundant as the following species; several of Pearse's specimens were obtained in October. *.

66. CHIFFCHAFF. *Phylloscopus minor*.

Very abundant on the vernal migration, and, I have good reason to believe, breeds in Cyprus. *.

67. BONELLI'S WARBLER. *Phylloscopus bonellii*.

Not uncommon in April and May in gardens, and the lower slopes of the hills in the district of Karpas. *.

68. *Regulus*, sp. inc.

See Guillemard, Ibis, 1888, p. 107.

69. COMMON WREN. *Troglodytes parvulus*.

I did not meet with the Wren in Cyprus, but although I can find no mention of the bird in Guillemard's 'Ibis' articles, he brought back a pair of skins, the male of which pair is labelled May 25, 1887, Kalapanagiotissa, and the female May 26, 1887, Kikko Monastery (4000 ft.). *. G.

70. TREE-CREEPER. *Certhia familiaris*.

Guillemard found this species in some abundance about the camp on Troodos both in 1887 and 1888; one of his specimens is labelled June 17, 1887, summit of Troodos (6500 ft.). The camp is, I believe, situated at some 500 feet below the summit of the range. *. G.

71. ROCK NUTHATCH. *Sitta syriaca*.

We did not meet with this species, or indeed with any *Sitta* in Cyprus, nor could Guillemard hear of the existence of the bird, or anything like it, in the most probable localities; but *S. syriaca* is recorded by Unger and Kotschy in 'Die Insel Cypern,' and therefore I place it in this list.

72. GREAT TITMOUSE. *Parus major*.

By no means uncommon wherever vegetation attains to the dignity of trees; Guillemard brought home one specimen from Kikko Monastery (referred to above as 4000 ft. above the sea-level), and I have others from various parts of the island. *.

73. GUILLEMARD'S TITMOUSE. *Parus cypriotes*.

Cf. Guillemard, 'Ibis,' 1888, p. 119, pl. ii., and elsewhere. It is only fair to the memory of Pearse to state here that he obtained specimens, on Troodos, of this Titmouse which I looked upon merely as belonging to a dark race of *P. ater*. I am sorry to say that I cannot consider the figure of this bird, in our volume for 1888, as by any means a satisfactory characteristic representation; but few people can be more fully aware than I am of the difficulties attending the correct reproduction of coloured drawings of birds. Unger and Kotschy record *P. ater* from Cyprus, but there can be little doubt that *this* is the species to which they refer. *. G.

74. BLUE TITMOUSE. *Parus cæruleus*.

Cf. Guillemard, 'Ibis,' 1888, p. 100.

75. GREY-BACKED PIED WAGTAIL. *Motacilla alba*.

We found this Wagtail tolerably common near Larnaca and Famagusta about the end of April. It certainly winters in Cyprus. *.

76. GREY WAGTAIL. *Motacilla sulphurea*.

Obtained by Pearse in November 1878, and by Guillemard in January 1888, but not observed by me. *.

77. BLUE-HEADED WAGTAIL. *Motacilla flava*.

Common in all moist places in April and May. Guillemard obtained it near Famagusta on March 20, 1888. *.

78. BLACK-HEADED WAGTAIL. *Motacilla melanocephala*.

Common in May in the same localities as the last species, but not, from my own observation, nearly so abundant as on the coast of Epirus and in Corfu at the same season of the year. *.

79. TREE PIPIT. *Anthus trivialis.*

Not uncommon near Larnaca in the latter half of April, 1875. *.

80. MEADOW PIPIT. *Anthus pratensis.*

Not uncommon in the plains near the coast in April; obtained by Guillemard in January, February, and March, and by Pearse in November. *.

81. RED-THROATED PIPIT. *Anthus cervinus.*

Perhaps more frequent than the last species in similar localities, but never, in my experience, very far from the sea, in April and May. *.

82. TAWNY PIPIT. *Anthus campestris.*

I shot one of this species close to the walls of Larnaca on the afternoon of our arrival in the roadstead, April 16, 1875, but have no other record of this Pipit from Cyprus. *. L.

83. WATER PIPIT. *Anthus spipoletta.*

I shot a female of this species in the Aqueduct marsh near Larnaca, on April 21, 1875, in the nuptial plumage, and Guillemard brought home a male in winter dress obtained at the great Akrotiri salt lake on January 5, 1888. This is the only species of *Anthus* mentioned in Unger and Kotschy's list. I have called this bird *Water* Pipit in deference to established usage; but *Alpine* or *Mountain* Pipit would be a far more distinctive and appropriate name, as indicating the usual breeding-habits of the species. I may mention that the only Pipit seen by me upon the little island of Standia off the town of Candia or Palæocastro in Crete was of this species. *.

84. SKY LARK. *Alauda arvensis.*

Exceedingly abundant in the low country in April and May, 1875, and obtained by Guillemard in February and March 1887 and 1888. *.

85. WOOD LARK. *Alauda arborea.*

I heard and saw Wood Larks more than once in the Karpas district in April, Pearse obtained specimens in November, and

I have three from Guillemard, two of which were obtained at Piskopi on January 3, and the other at Troodos camp on April 18, 1888. *.

86. CRESTED LARK. *Alauda cristata*.

Very abundant in all parts of Cyprus visited by me, breeds in the plains and is probably resident. *.

87. SHORT-TOED LARK. *Calandrella brachydactyla*.

Not very abundant and apparently somewhat local, obtained by me on the plains of Salamis in April 1875; this was the only spot in which I met with this bird in Cyprus. *. 1.

88. CALANDRA LARK. *Melanocorypha calandra*.

Very common in the open country, breeds and is, no doubt, a permanent resident in Cyprus. In riding across a dusty plain under a hot sun it is somewhat difficult to form an accurate estimate of the relative numbers of Larks of various species that are constantly rising, hovering and singing around; but I am inclined to consider the Calandra, numerically speaking, as ranking next to the Sky Lark in the dreary open wastes and fallow lands of Cyprus. *.

89. COMMON BUNTING. *Emberiza miliaria*.

Tediously common in the corn-lands in April and May; breeds. *.

90. ORTOLAN. *Emberiza hortulana*.

This species is recorded in Unger and Kotschy's list of Cyprus Birds, but was not met with by us.

91. CRETZSCHMAR'S BUNTING. *Emberiza cæsia*.

Exceedingly common both in the plains and mountains, breeding early in May. Guillemard seems to have met with this species in most parts of Cyprus (*cf.* 'Ibis,' 1888, pp. 109, 119, 121); and one of his specimens was obtained in March. The favourite haunts of this bird, in my Cyprus experience, are the shrub-grown slopes of the hills; but Guillemard calls it "ubiquitous," and met with it on the summit of Troodos. *.

92. BLACK-HEADED BUNTING. *Emberiza melanocephala*.

I found this fine Bunting in great abundance in the neigh-

bourhood of Trikhomo, and to the eastward of that village along the south coast of the Karpas district towards the end of April. Guillemard appears to have found it abundantly on the northern side of the northern range, and my experience coincides with his as to the great preponderance of the males over the females (*cf.* 'Ibis,' 1888, p. 115). Of course the brilliant colours of the males naturally first attract attention, but this excess in their numbers is a positive fact, not only in Cyprus, but on the coasts of Epirus, as I frequently proved in hunting for nests in the latter locality in 1857 and 1858. I believe that this bird is a summer visitor to Cyprus, where it breeds in considerable numbers. *.

93. REED BUNTING. *Emberiza schæniclus*.

I did not meet with this bird, but amongst the bird-skins collected by Guillemard is one female of this species labelled "Lake near Famagusta, February 13, 1888;" this is the only evidence in my possession of its existence in the island. *. G.

94. LARGE-BILLED REED BUNTING. *Emberiza pyrrhuloides*.

My only authority for giving this Bunting a place as a Cyprian bird is that its name occurs in a list (founded on a collection of skins and eggs sent to Schlüter of Halle, and supplemented by that of Unger and Kotschy) which was published by Herr August Müller, Journ. f. Orn. 1879, pp. 385–393 †. I am indebted to the kindness of Mr. H. Seebohm for this information, as also for a written copy of the list to which I refer. For the sake of brevity, in future reference to any species added by Müller to the list given by Unger and Kotschy, I shall simply use his name and *op. supr. cit.*

95. CHAFFINCH. *Fringilla cælebs*.

I did not meet with the Chaffinch in Cyprus, and Guillemard (*cf.* 'Ibis,' 1888, p. 98) appears to have come across it but seldom in the low country, but brought home two males obtained on Troodos in May 1887 and April 1888 respectively, and a female from Piskopi, obtained in March of the former year. *. G.

† "Zur Ornithologie der Insel Cypern." Von Aug. Müller. J. f. O. 1879, p. 385.

96. HOUSE SPARROW. *Passer domesticus*.

Very abundant about the towns and villages, where it breeds in great numbers. *.

97. SPANISH SPARROW. *Passer salicicola*.

I find one very fine male in Guillemard's collection, dated Makkera Monastery, March 12, 1888, and it is possible that I may have given away one or two other specimens of this bird, but I have no recollection of having received more than one from him, and suppose that it must be uncommon in Cyprus, as I did not meet with it in any of the many likely localities that I visited, and only received a few specimens from Pearse. I can find no mention of this species in Guillemard's 'Ibis' articles. *.

98. ROCK SPARROW. *Fringilla petronia* (sic).

Cf. Unger and Kotschy, *op. supra cit.* Not met with by any of us.

99. HAWFINCH. *Coccothraustes vulgaris*.

One only seen alive in captivity at Papho by Guillemard, *cf.* 'Ibis,' 1889, p. 217.

100. GREENFINCH. *Fringilla chloris*.

My only authority for giving this species a place in this list is that I find it in a rough list compiled by Guillemard and myself, with the initial G. after the name of the bird.

101. GOLDFINCH. *Carduelis elegans*.

Exceedingly abundant and breeds. *.

102. SERINE FINCH. *Serinus hortulanus*.

Not uncommon in the south of the island, and obtained by Guillemard at the camp, on Troodos, in March and April. *.

103. LINNET. *Fringilla bella* (Guillemard), *Ibis*, 1888, p. 105.

I have given the systematic name as above for the sake of reference to Guillemard's 'Ibis' article. The bird is common in Cyprus, and one specimen, obtained by Guillemard on June 2nd, is certainly very brightly coloured on the breast; but although I have no specimens from other countries now at hand with which to compare it, I certainly have met with

Linnets fully as brilliant as this one in Northern Spain in May 1867 and 1876. *.

104. CROSSBILL. *Loxia curvirostra*.

Cf. Guillemard, 'Ibis,' 1889, p. 217. A good series of old and young obtained on Troodos, April 20–23, 1888, inclusive. These birds are, as Guillemard says, dark in plumage, and have very stout bills. *. G.

105. STARLING. *Sturnus vulgaris*.

Cf. Guillemard, 'Ibis,' 1889, pp. 210, 211. I believe this, our Common Starling, to be a winter visitor to Cyprus, as is probably the following species also. *. G.

106. PURPLE-WINGED STARLING. *Sturnus purpurascens*.

Cf. Guillemard, 'Ibis,' 1889, pp. 210, 212.

Mr. H. Seebohm has kindly supplied me with the following note on specimens obtained in Cyprus by Pearce in October 1878 :—"The form with a green crown and mantle to which Finsch gave the name of *S. poltaratzkii*:" *cf.* R. B. Sharpe, 'Ibis,' 1888, p. 439. The latter gentleman has written this name in pencil upon the labels of two specimens collected by Guillemard, and *S. purpurascens* on that of a third of the same collection. All that my limited knowledge permits me to say on this subject is, that these three specimens do not belong to our common British species. *.

107. ROSE-COLOURED STARLING. *Pastor roseus*.

Cf. Unger and Kotschy, *op. supra cit.*

It is very remarkable that none of us met with this bird, which is very well known in Cyprus, and reported to follow the flights of locusts, occasionally in enormous flocks. I have been assured that the Rosy Pastor sometimes breeds in the island, but of this I have, so far, no tangible evidence.

108. RAVEN. *Corvus corax*.

The Raven is exceedingly common in Cyprus, my specimens vary considerably "*inter se*" in dimensions, are very stout-billed, and have all some umber-brown feathers in the wings, showing affinity to the races *C. umbrinus* and *C. tinitanus*. *.

109. GREY CROW. *Corvus cornix*.

Very common in the low country near the sea ; frequents the towns and villages, and breeds in low trees almost wherever they exist. My specimens have somewhat lighter-coloured mantles than average British birds of their species. We did not meet with *C. corone*. *

110. ROOK. *Corvus frugilegus*.

Cf. Guillemard, 'Ibis,' 1888, p. 99.

Pearse obtained a specimen of this bird in November, and I have every reason to believe that Guillemard is correct in considering it as a somewhat uncommon winter visitor to Cyprus. *

111. JACKDAW. *Corvus monedula*.

Very abundant and breeding at Famagusta in April 1875 ; this was the only locality in which I noticed this species, but Guillemard met with it at Nikosia in plenty, and observed it in other parts of the island. I suppose that most of my Cyprian Jackdaws would come under the designation of *C. collaris*, but I am more than ever convinced that the grey collar is not even a constant climatic character. *

112. MAGPIE. *Pica caudata*.

Very common and breeds. The Cyprian Magpie does not differ from the ordinary European type except that, in common with many of the South-European *Corvidæ*, a good deal of brown appears on the primaries and rectrices of some specimens. *

113. JAY. *Garrulus glandarius*.

Cf. Guillemard, 'Ibis,' 1888, p. 120. Unger and Kotschy include *Garrulus glandarius* in their list of the Birds of Cyprus, *op. supra cit.*; but Mr. H. Seebohm, who has examined the two specimens obtained by Guillemard in 1887 and others brought home by him in 1888, has supplied me with the following observations :—"The Cyprian Jay is one of the local races of the Striped-headed Jay which ranges from Britain to Japan. It is scarcely distinguishable from the East-Russian variety *Garrulus severtzovi*, and, like that race,

is one of the intermediate forms between *G. brandti* and *G. glandarius*." Mr. Seebohm goes on to point out that the Cyprian Jay differs from *G. glandarius* in having little or no white on the forehead and crown; but for the present I prefer to let it stand under this designation. *.

114. SWALLOW. *Hirundo rustica*.

Exceedingly abundant. Guillemard records his first sight of a Swallow in Cyprus on February 24th, 1887, and on the 13th of that month in 1888. His remarks on the variety in the coloration of the Cyprian House Swallows, at p. 120, 'Ibis' 1888, are well borne out by the specimens obtained. *.

115. RED-RUMPED SWALLOW. *Hirundo rufula*.

Very common in certain localities and, as Guillemard states, seldom to be met with at any considerable distance from its breeding-haunts. I only met with this very beautiful and conspicuous Swallow at a certain spot amongst the hills not far from the south coast of the Horn of Cyprus and at Famagusta; but Guillemard found it in many other localities, notably at the ruins of Bellapais; he mentions having noticed a solitary individual of this bird on March 6th, 1887, between Pera-Khorio and Tochui. *.

116. MARTIN. *Chelidon urbica*.

I observed but few of this species, but Guillemard found it breeding in great numbers on the walls of the monastery of Kikko towards the end of May 1887, and states that a few of these birds remain in Cyprus throughout the winter: *cf.* Ibis, 1889, p. 211. *.

117. SAND MARTIN. *Cotile riparia*.

I do not find a specimen of this bird from Cyprus in my collections, but have a note of it as observed both by Guillemard and myself, and it is included in Unger and Kotschy's list. It was certainly not common in any part of Cyprus visited by me in April and May.

118. CRAG MARTIN. *Cotile rupestris*.

Only observed on one occasion by me, in small numbers in the Karpas district, but found breeding near Kantara in

March, and under the eaves of the Governor's House on Troodos in April 1888 by Guillemard, who obtained specimens. *. G.

119. SWIFT. *Cypselus apus*.

Exceedingly common, especially at Famagusta, in the latter half of April and in May. *.

120. PALLID SWIFT. *Cypselus pallidus*.

Guillemard obtained specimens of this race at Kikko monastery late in May 1887. I did not recognize it, and suppose that it is as strictly local in Cyprus as in Andalucia. *. G.

121. WHITE-BELLIED SWIFT. *Cypselus melba*.

I several times observed this species high in air near the sea, and Guillemard records having met with it in various parts of the island, and as probably breeding near the castle of Kantara about the end of March 1888: *cf.* Ibis, 1889, p. 215. *.

122. NIGHTJAR. *Caprimulgus europæus*.

We found a great number of Nightjars close to the sea near Ghalinopori in the Karpas district in the last week of April 1875; these birds had evidently just come in, and many of them declined to move till they were actually touched. We afterwards met with a few in other parts of Cyprus; but the natives whom we questioned declared that this bird, which is very well known to them by a name equivalent to *Caprimulgus*, not only does not breed in Cyprus, but does not lay eggs at all, and is inspired with a fruitless passion for the Cuckoo. *.

123. CUCKOO. *Cuculus canorus*.

Exceedingly common in all parts of the island visited by me. *.

124. GREAT SPOTTED CUCKOO. *Oxylophus glandarius*.

I was much surprised at not finding this bird in Cyprus, and cannot think that it can be abundant in the island at any time. Pearse sent one specimen, Guillemard obtained one near Famagusta on March 19, 1888, and I received from him

in January 1889 an unlabelled skin of this species sent home by Captain Young, H.M. Commissioner for Famagusta. Müller, *op. supra cit.*, says of this bird, "eggs from Magpies' nests," which is no doubt perfectly true; but I should think that if the bird is at all abundant in Cyprus, he would also have found its eggs in the nests of *Corvus cornix*. *.

125. HOOPOE. *Upupa epops*.

Common, but by no means abundant according to my observations: *cf.* Guillemard, *Ibis*, 1888, p. 104, and 1889, p. 217. *.

126. ROLLER. *Coracias garrula*.

Very frequent. Guillemard notes the first seen by him in 1888 on April 3rd. This beautiful bird breeds abundantly in Cyprus in soft banks of marl and sand. A Roller that was, as an American would say, "fooling around," made a fierce stoop at a slightly wounded Snipe in the Aqueduct marsh, near Larnaca, on May 5th, 1875, and, to use a term of Falconry, fairly "put him in." This is the only occasion during a long and pretty intimate acquaintance with this species that I ever witnessed an attack by it upon any bird; but experience has taught me utter disbelief as to the amiable disposition of any bird with even slight Corvine affinities. *

127. BEE-EATER. *Merops apiaster*.

Exceedingly common, arriving about the beginning of April, breeding and, as I am assured, leaving the island altogether before the middle of July. *.

128. KINGFISHER. *Alcedo ispida*.

Once only observed by me in Cyprus, in the inner Venetian harbour of Famagusta, in April 1875. Guillemard obtained one in the same neighbourhood in February, and another at Larnaca in April 1888. *.

129. PIED KINGFISHER. *Ceryle rudis*.

Cf. Guillemard, *Ibis*, 1888, pp. 102, 103.

130. SMYRNA KINGFISHER. *Halcyon smyrnensis*.

I did not meet with this bird, but my guide and interpreter, who had a very fair acquaintance with the birds of the island, told me of having seen, on his journey from

Limasol to Papho to rejoin the yacht, a bird of about the size of a Roller, but with a long red beak and blue wings, sitting on a bough within a few yards of the mule-track upon which he was travelling. He pulled up to shoot at it, upon which the bird flew up a gully out of sight, with a curious harsh scream, and in spite of a long search my informant could not get another glimpse of the bright-coloured unknown. I may mention that as this man was not a Greek I have no reason to doubt his story; he assured me that he had never seen any bird at all resembling the subject of this tale. *Cf.* Guillemard, *Ibis*, 1888, p. 102.

131. "PICUS sp.? *Κραουρος*." Unger and Kotschy, *op. supra cit.*

None of us met with any species of Woodpecker in Cyprus.

132. WRYNECK. *Iynx torquilla*.

I recognized the cry of this bird more than once near Limasol in May 1875; but the only specimen in my possession is a female obtained at Piskopi by Guillemard, March 24, 1887, and I am inclined to consider the Wryneck as a somewhat rare species in the island. *.

133. RING DOVE. *Columba palumbus*.

I did not meet with the Wood Pigeon in Cyprus, but Guillemard obtained specimens near Limni in June 1887, and also records meeting with it in the neighbourhood of Anoyona, on the slopes of the Troodos range in January 1888: *cf.* *Ibis*, 1888, p. 123, and 1889, p. 209. It is also recorded by Unger and Kotschy, *op. supra cit.* *. G.

134. STOCK DOVE. *Columba ænas*.

Cf. Unger and Kotschy, *op. supra cit.* I believe that I saw a pair of these birds near Trikhomo, but it is possible, as they were at a considerable distance, that they may have been Wood Pigeons; they were certainly not Rock Doves.

135. ROCK DOVE. *Columba livia*.

In great abundance in the cliffs between Cape Zephgari and Cape Gatta, and often met with in the plains of Salamis and other parts of the island. *

136. **TURTLE DOVE.** *Columba turtur*.

More abundant in Cyprus in April and May than in any other part of the world that I have visited. Cf. Guillemard, *Ibis*, 1888, p. 113. *.

137. **COLLARED TURTLE DOVE.** *Columba risoria*.

I noticed one or two of this species in the streets of Larnaca, and Guillemard in his rough list mentions a *Turtur*, without specific name, which no doubt refers to this race. This Dove swarms about the mosques and streets of the town of Rhodes. It is included in the bird-list of Unger and Kotschy, *op. supra cit.*

138. **PINTAILED SAND GROUSE.** *Pterocles alchata*.

Cf. Unger and Kotschy, *op. supra cit.* “Πάρδαλος.” I heard many rumours of Sand Grouse as occurring in the central plains of Cyprus, but I did not meet with any species of this family. Guillemard, however, *Ibis*, 1888, p. 98, writes:—“a species of *Pterocles* is now common, and I learnt on good authority that it breeds in the island.” The Mesorea is certainly well adapted to the habits of Sand Grouse, and it would be extremely interesting to British ornithologists to know if it has been visited this year by *Syrrhaptes paradoxus*; but although my friend Guillemard has succeeded in instilling a taste for our science in a certain official quarter of the island, I fear that we are not likely to obtain any positive evidence on this latter point.

In a letter signed E. H. T., which appeared in the ‘Field’ of April 27, 1889, a species of Sand Grouse is mentioned as being (apparently) common and well known in Cyprus. This letter is entitled “Odds and Ends of Sport in Cyprus,” and the writer, by an obvious slip of the pen, mentions “Ptarmigan” as one of the game birds of the island. I presume that Francolin was the name that this anonymous sportsman intended to write.

139. **CHUKAR PARTRIDGE.** *Caccabis chukar*.

This Partridge (which, in my opinion, has been very properly separated from the so-called Greek Partridge, *Caccabis saxatilis*) is exceedingly common in almost all

parts of the island in spite of constant persecution by Greek natives at all times of the year. I was informed at Larnaca, in 1875, that the Turkish Governor of Cyprus had then recently issued a decree to prevent the practice of taking the eggs of this bird and the Francolin by the native Christians for their Easter fooleries, and I only trust that our authorities have kept up at least this edict of their predecessors. We found this species as common in the wheat-fields of the plains as amongst the scrub of the hill-sides. Guillemard records having heard of young Partridges as large as Quails in the third week of May 1887, and almost all the eggs found by me about the end of April 1875 were more or less hard-set. The nests of this species that we found were simply slight "scratchings," in which a few dry leaves and grass-stems had been pulled together under an evergreen bush; the greatest number of eggs found by my party in one nest was thirteen. With one or two exceptions all the Partridges that we met with in Cyprus were of the white-throated race of *C. chukar*, whilst, on the other hand, the few that I saw in Crete were more or less rufous-throated. *.

140. FRANCOLIN. *Francolinus vulgaris*.

My principal object in visiting Cyprus was to make the personal acquaintance of this beautiful game bird, and I am glad to say that this object was fully attained. I have been assured by several friends, some of whom had spent several years in the island, that this species had been so ruthlessly persecuted that I should probably have great difficulty in meeting with it; but on first setting foot ashore in Cyprus, on the eastern side of the Bay of Episkopi, my hopes were much revived by the report of one of my crew, who had gone ashore before us in search of water, and reported having flushed two "Black" Partridges on the rising ground a little to the north of Cape Zephgari. I did not, however, meet with or hear a Francolin in this district on that occasion. The shortness of my stay on the coasts of Cyprus does not authorize me to speak as to the relative

abundance or scarcity of this bird in various parts of the island, but we found a considerable number and heard many more along the coast from a few miles northwards of Salamis, nearly to the extremity of the Horn of Cyprus. I also met with it in the hills to the west of Trikhomo, where on April 24th, 1875, I had the luck to find a nest containing eleven eggs; but as my notes on this species have been published *in extenso* by Mr. Dresser in his 'Birds of Europe,' I will not recapitulate them here. Sir Garnet (now Viscount) Wolseley did me the honour, on leaving England to assume the High Commissionership of Cyprus in 1878, to consult me with regard to framing a Game Law; but I do not know if he thought well of, or acted upon, my recommendations. Be this as it may, I am pleased to learn from Guillemard that the Francolin still exists in some numbers in certain districts, though virtually extinct in many localities in which it was formerly abundant.

The drawing up and issuing of laws by a Governor and his Council are by no means difficult matters, nor need there be any serious obstacle in enforcing them; but as we have given the Cypriotes the very questionable benefit of representative government, it is more than probable that the Francolin and many other sweet and pleasant things of Cyprus are doomed to extinction. The Turk allowed "sleeping dogs to lie;" the Englishman, with let us hope the best intentions, entered Cyprus with a great flourish of trumpets and talk of emancipation, of which the only result, so far, appears to have been a temporary outbreak of Greek frothy scum and vapour, and a subsidence on all parts into complete apathy.

Unger and Kotschy give the Greek name of this bird as "Αττάγαναρ," which the Cyprians pronounce as "Afto-chinari." *.

141. COMMON QUAIL. *Coturnix vulgaris*.

We found a very great number of Quails near the coasts of Cyprus shortly after our arrival thereon, about the middle of April; a few dropped on our deck at night as the yacht

lay off Famagusta and Salamis, and every one assured us that the vernal "entry" of 1875 was about an average one; Guillemard, on the other hand (*Ibis*, 1889, p. 210), refers to the remarkable scarcity of this species during his two visits. *.

142. LAND RAIL. *Crex pratensis*.

My only authorities for the existence of this species in Cyprus are a pencil-note by Guillemard attached to its name in our rough list, consisting of three words—"heard March 6th;" the year is not given, but, from collateral evidence, I presume that it must have been 1888, in the neighbourhood of Famagusta, and I also find "*Gallinula crex*" in Unger and Kotschy's list (*op. supra cit.*).

143. SPOTTED CRAKE. *Crex porzana*.

We found the Spotted Crake in abundance in every likely spot that we hunted up with our dogs in April and early May 1875. I have no doubt that it breeds in Cyprus, but prudence forbade my wading in the few real marshes that we visited, and I could not persuade any of my companions to do so. *.

144. LITTLE CRAKE. *Crex pusilla*.

I did not meet with this Crake in Cyprus, but Guillemard obtained one near Larnaca in April 1887, and mentions having observed it at another locality in the same neighbourhood in February 1888. *Cf. Ibis*, 1887, p. 110, and 1888, p. 210. *. G.

145. BAILLON'S CRAKE. *Crex bailloni*.

I shot an adult female of this species in the Aqueduct marsh near Larnaca on April 19, 1875, but have no other record of its occurrence in Cyprus. *. L.

146. WATER RAIL. *Rallus aquaticus*.

Not uncommon in suitable localities, but, of course, more often to be heard than seen. I may here mention that I have a very distinct recollection of having read many years ago, I think in the 'Sporting Magazine,' an article on sport in Cyprus, in which the abundance of "Rails" is specially

alluded to. It must be thirty years since I read this article, and I have vainly searched for it during the last fifteen, in a *nearly* complete set of the old magazine to which I have referred. *.

147. WATER-HEN. *Gallinula chloropus*.

Common in all suitable localities. *.

148. COOT. *Fulica atra*.

I did not meet with this species in Cyprus, but was assured by many persons worthy of credit that it abounds on the fresh- and salt-water lakes of Cyprus during the winter. The Coot is not included in Unger and Kotschy's list, nor can I discover any mention of it in either of Guillemard's 'Ibis' articles, but I have a specimen collected by him labelled "Famagusta Lake, 15.3.88," and I received others from Pearse. *.

149. COMMON CRANE. *Grus cinerea*.

I have notes of seeing some long strings of Cranes passing to the northward over the Famagusta district in the third and fourth weeks of April; the species appeared to be well known and distinguished by the natives from the Demoiselle, though I can find no mention of it in Guillemard's 'Ibis' articles or in Unger and Kotschy's list.

150. DEMOISELLE CRANE. *Grus virgo*.

A flock of some thirty of this species frequented the wheat-lands at a short distance to the north-west of Larnaca on, and for several days after, April 17, 1875, but eluded all our attempts to get within shooting-range. Cf. Guillemard, Ibis, 1889, p. 216, and my own note on *Aquila heliaca*, supra, p. 307. *. G.

151. GREAT BUSTARD. *Otis tarda*.

Cf. Guillemard, Ibis, 1888, p. 98. From what I heard in Cyprus this bird appears to be a casual and somewhat uncommon winter visitor to the Mesorea.

152. LITTLE BUSTARD. *Otis tetrax*.

Cf. Guillemard, Ibis, 1888, p. 97, and Müller (*o. s. c.*). I saw a small flock of birds near Famagusta which I believe to have been Little Bustards, but they were at too great a

distance for possible identification. The species is well known in the island, and is reported as breeding in the corn-lands, and credited with destroying great numbers of locusts.

153. STONE CURLEW. *Ædicnemus crepitans*.

Common in all suitable localities, and, I believe, a permanent resident in Cyprus. *.

154. COLLARED PRATINCOLE. *Glareola torquata*.

Very abundant on the vernal migration about the beginning of May, skimming over the marshes and wheat-fields by day and moonlight. I have no doubt that this bird breeds in Cyprus. *.

155. RINGED PLOVER. *Ægialitis hiaticula*. *.

156. LITTLE RINGED PLOVER. *Ægialitis minor*. *.

157. KENTISH PLOVER. *Ægialitis cantiana*. *.

All more or less frequent. The Kentish Plover is, perhaps, the most abundant of the three, and breeds in Cyprus.

158. GREATER SAND PLOVER. *Ægialitis geoffroyi*.

The only specimen of this Plover in my Cyprian collections is a male beginning to assume the summer plumage, shot by Guillemard, near Cape Gatta, March 10, 1887. Cf. Ibis, 1888, p. 104. Guillemard informs me that this bird was one of a flock of six or seven, and that the day above mentioned was the only occasion of his meeting with this species in Cyprus. *. G.

159. SPUR-WINGED PLOVER. *Hoplopterus spinosus*.

Before visiting Cyprus I was assured that this was one of the most characteristic and abundant birds in the island, and that it was well known to the peasantry under the name of “’Iavιτξapi”; but I did not find that this designation, as applied to a bird, was known to any one of the many natives from whom I sought for information. We obtained one specimen near Cape Gatta, out of the only two met with by my party in Cyprus, on May 8, 1875, and I can only find one reference to this bird by Guillemard (cf. Ibis, 1889, p. 214); but both he and Pearse obtained specimens. An officer of the “Black Watch” who was quartered at Kyrenia

during the winter of 1878–79 told me that he shot a Peewit near that place, and on emptying his game-pocket found that the bird stuck fast therein. He was exceedingly astonished to find that the detaining agency was a “thorn” attached to the wing-joint of the dead bird, but did not discover that his prize was anything more than a common Green Plover. *.

160. LAPWING. *Vanellus cristatus*.

I suppose that this species may be considered as a winter visitor to Cyprus, as I did not meet with it in April in most suitable localities. From Guillemard's notes (*cf.* Ibis, 1888, p. 98, and 1889, p. 211) it would appear that, although met with by him in flocks in February, it can hardly be called abundant in the island. It is not included in Unger and Kotschy's list, nor did Pearse send home any specimens. *. G.

161. GOLDEN PLOVER. *Charadrius pluvialis*.

Cf. Guillemard, Ibis, 1889, p. 214. I can find no other record of the occurrence of this species in Cyprus. *. G.

162. OYSTER-CATCHER. *Hæmatopus ostralegus*.

Cf. Unger and Kotschy, *op. supra cit.*

163. BLACK-WINGED STILT. *Himantopus melanopterus*.

Common in May about the freshwater marshes. *Cf.* Guillemard, Ibis, 1888, p. 111, and 1889, p. 219. *.

164. WOODCOCK. *Scolopax rusticula*.

I was, of course, too late in the season in my visit to Cyprus to meet with this bird, which only visits the island in November and December, occasionally in very large numbers. I have heard a rumour of forty couples of Woodcocks having fallen to the guns of two English officers in the district of Akamas, not far from Cape Arnauti. I was informed that the hillsides near Trikhomo are very favourite haunts in rainy winters, and that, as a general rule, the great autumnal flights are satisfied with their quarters on the north side of the Mesorea, though a fair sprinkling are often to be found to the south of that great plain. My interpreter assured me that two Englishmen, to whom he acted as guide some years before my visit, made a bag of nearly 100 head in the south-

west of Cyprus, of which Woodcocks formed about a fourth part, the remainder being composed of Partridges, Francolins, Quails, Snipes, and Hares, but, with the exception of the large bag of Woodcocks above mentioned, I have heard of no such good sport in Cyprus since the British annexation. *

165. GREAT SNIPE. *Scolopax major*.

We found several Great Snipes in the Aqueduct marsh near Larnaca, in the third week of April, and Guillemard brought home specimens, one of which was killed near Famagusta as late as May 24, 1888. *.

166. COMMON SNIPE. *Scolopax gallinago*.

As to the abundance of this species, I must refer my readers to Guillemard's 'Ibis' articles, I may almost say *passim*. We always found a few Snipes in the Aqueduct marsh on our frequent visits thereto in April, and I have a note of finding some there on May 5th. Guillemard was assured that some Snipes remain in Cyprus throughout the summer; but as this was told to him by natives, he wisely declines to guarantee the truth of the statement, though I must confess that I see less reason for absolute disbelief in this case than in most of the utterances of modern Greeks, who seem to lie simply for the pleasure that the practice affords them. For abundance of this species in March, *cf.* Ibis, 1889, p. 214. *.

167. JACK SNIPE. *Scolopax gallinula*.

I saw but few of this species in Cyprus, and I can only find it specially mentioned once by Guillemard (*cf.* Ibis, 1888, p. 110). Pearse sent home a few specimens, killed in the winter of 1878–79. Guillemard's specimen bears date "16.4.87." *.

168. DUNLIN. *Tringa variabilis*.

In small numbers on the sandy shores near Famagusta and Limasol in April and May. *Cf.* Guillemard, Ibis, 1889, p. 219. *.

169. LITTLE STINT. *Tringa minuta*.

Two specimens of this species are in my Cyprian collections:

one, from Pearse, is labelled “ ♀ . Larnaca, October 1, 1878;” the other from Guillemard, “Famagusta Lake, May 21, 1888.”
*Cf. Müller, op. supra cit. **

170. CURLEW SANDPIPER. *Tringa subarquata.*

Cf. Unger and Kotschy, op. supra cit.

171. SANDERLING. *Calidris arenaria.*

One specimen only in my collections from Cyprus, a male in complete winter plumage, obtained by Pearse, Larnaca, October 1, 1888. *. P.

172. RUFF. *Machetes pugnax.*

Not uncommon on the vernal migration. One of Guillemard's specimens is dated Feb. 27, 1888, and he mentions a Ruff as obtained on May 20th, “in full plumage” (*cf. Ibis*, 1889, p. 219). *.

173. COMMON SANDPIPER. *Totanus hypoleucos.*

Very common in April and May on almost all parts of the coasts of Cyprus visited by me. *.

174. GREEN SANDPIPER. *Totanus ochropus.*

Frequent, singly or in couples, wherever there was mud, in April and May. Guillemard obtained specimens in March on both of his visits to Cyprus. *.

175. WOOD SANDPIPER. *Totanus glareola.*

Common, especially near Limasol, in May. From the manners of a pair of this species observed in that neighbourhood, near a little pool fringed with tamarisk-bushes and high rushes, I am convinced that they had a nest there, but we sought for it in vain. *.

176. MARSH SANDPIPER. *Totanus stagnatilis.*

One specimen only in our Cyprian collections, received, without any particulars, through Guillemard from Captain Young, of Famagusta, in January 1889. I did not identify the Marsh Sandpiper, a species with which I am well acquainted, in Cyprus. *Cf. Unger and Kotschy, op. supra cit. **

177. COMMON REDSHANK. *Totanus calidris*.

Exceedingly common, especially about the salt lakes near Larnaca, in April 1875.

178. SPOTTED REDSHANK. *Totanus fuscus*.

I shot the only specimen in my Cyprian collection in the oft-referred to Aqueduct marsh near Larnaca on April 21, 1875. This was the only occasion of my meeting with it in the island, and I have no other record of its occurrence therein. The bird is a female, and rose like a Snipe from thick rushes within easy shooting-distance. *. L.

179. GREENSHANK. *Totanus glottis*.

Not uncommon in the swampy plains westward of Salamis in April; I did not observe the Greenshank in flocks, but singly or in couples, probably in pairs. *.

180. BLACK-TAILED GODWIT. *Limosa melanura*.

I did not positively identify this bird in Cyprus, but feel little doubt as to having seen it near Famagusta, in which neighbourhood Guillemard obtained specimens in March 1888. *. G.

181. CURLEW. *Numenius arquata*.

Although none of us obtained this species in Cyprus, I saw it in great numbers about the Akrotiri salt lake in April 1875, as also subsequently in other localities. Cf. Unger and Kotschy, *op. supra cit.*

182. WHIMBREL. *Numenius phaeopus*?

The only Whimbrel obtained by any of us in Cyprus was shot by Guillemard at Kuklia, and stolen by a cat (*cf.* Ibis, 1889, p. 213). I saw great numbers of what I took to be Slender-billed Curlews (*Numenius tenuirostris*) near Larnaca and Limasol, but never managed to approach them closely enough for absolute certainty of identification. I have appended a sign of interrogation after the Latin specific name *phaeopus* above, as I think it more than probable that Guillemard's bird may have been *N. tenuirostris*.

183. COMMON HERON. *Ardea cinerea*.

Occasionally observed, but not abundant. Cf. Guillemard, Ibis, 1888, p. 110, and Unger and Kotschy, *op. supra cit.*

184. PURPLE HERON. *Ardea purpurea*.

Very common in the marshes in April and May, and frequently met with in wheat-fields. *.

185. GREAT WHITE HERON. *Ardea alba*.

Cf. Unger and Kotschy, *op. supra cit.* We did not obtain this bird in Cyprus, but my Spanish companion, who is well acquainted with all the common marsh-frequenting birds of Andalusia, assured me that he saw three snowy-white Herons at the Akrotiri salt lake on April 15, 1875, of at least twice the size of *A. garzetta*, with which species he was very familiar on wing, and still more so "in the flesh."

186. LITTLE EGRET. *Ardea garzetta*.

I only find one reference to this species by Guillemard (*cf.* Ibis, 1888, p. 113), and it is not included in Unger and Kotschy's list, but I often met with it in the south of Cyprus, and have a note of one flying over the yacht just as we dropped anchor for the first time in Cyprian waters in the Bay of Episkopi on April 15, 1875. *.

187. BUFF-BACKED EGRET. *Ardea bubulcus*.

The most common *Ardea* of Cyprus in April and May. Soon after "making the land" of Cyprus on our voyage from Crete, on the morning of April 14th, we were boarded by three of this species, a Wheatear, two Hoopoes, and a Short-eared Owl, all evidently nearly tired out by their crossing from the African coast. On the previous day, before sighting land, we had passing visits from a Common Redstart, several small Warblers, Hoopoe (*Motacilla flava*), and a large Falcon, which, though it was too late to identify him positively, I believe to have been *Falco sacer*. *.

188. SQUACCO HERON. *Ardea comata*.

Tolerably frequent, but not so common in Cyprus in April as it is in the marshes of Epirus. *.

189. NIGHT HERON. *Nycticorax griseus*.

Not very abundant, but observed several times, and obtained by me near Limasol. *.

190. LITTLE BITTERN. *Botaurus minutus*.

Common at the latter end of April and beginning of May. I believe that this bird breeds in a certain locality near Limasol, as it no doubt does in other parts of Cyprus. *.

191. COMMON BITTERN. *Botaurus stellaris*.

Cf. Guillemard, Ibis, 1889, p. 219. No specimen was brought home, and this is the only record of the Bittern in Cyprus that I have as yet met with.

192. WHITE STORK. *Ciconia alba*.

I can find no record but my own of the occurrence of the Stork in Cyprus; indeed, on first making inquiries about birds on our arrival at Larnaca, I was assured that the absence of this species was the most remarkable ornithological fact known to those whom I questioned; but whether they ever alight on the soil of the island or not, I saw a large flock of Storks coming in to land from the southward near Ghalinopori, in the Horn of Cyprus, on the afternoon of April 26, 1875. It is only fair to my Larnaca informants to say that the peasantry ignored the common Greek and Turkish names of this generally well-known species.

193. GLOSSY IBIS. *Ibis falcinellus*.

Cf. Guillemard, Ibis, 1888, p. 111, and 1889, p. 215, also Müller, *op. supra cit.* I cannot state positively that I saw this bird in Cyprus. *. G.

194. SPOONBILL. *Platalea leucorodia*.

Cf. Müller, *op. supra cit.* I can find no other record of this species from Cyprus.

195. FLAMINGO. *Phænicopterus roseus*.

I received one very dilapidated skin of the Flamingo from Pearse, without label, but no doubt obtained near Larnaca during the winter of 1878–79. Many persons told me that the Flamingo visits the great salt lakes of Cyprus during the

winter, often in very large numbers, but neither Guillemard nor Unger seem to have met with it. *. P.

196. GREY-LAG GOOSE. *Anser ferus*.

Cf. Unger & Kotschy, *op. supra cit.* Guillemard (Ibis, 1889, p. 210) mentions seeing "a fine string of Geese" passing over the salt-lakes south of Larnaka on one occasion, but I have no example of any species of Goose from Cyprus.

197. MUTE SWAN. *Cygnus olor*.

Cf. Guillemard, Ibis, 1888, p. 111. The specimen there mentioned, and Guillemard's note at the page referred to, are my authority for the occurrence of this Swan in Cyprus. *. G.

198. RUDDY SHELD-DUCK. *Tadorna casarca*.

Cf. Guillemard, Ibis, 1889, p. 214. I am positively assured, on fair authority, that this species breeds in the Papho district. I may here mention, to account for the brevity of my references to the Ducks, that, although Pearse spent the whole winter of 1878-79 in Cyprus, I did not receive a single specimen of the genera *Anas* and *Fuligula* from him, and, with one exception, to be mentioned below, did not myself identify any Ducks during my visit to the island. *. G.

199. COMMON SHELD-DUCK. *Tadorna cornuta*.

Cf. Guillemard, Ibis, 1889, pp. 211, 213. *. G.

200. MALLARD. *Anas boschas*.

It is superfluous to note Guillemard's frequent mention of this species in his 'Ibis' articles. I picked up some moulted feathers of this Duck near Salamis about the end of April, but, though I often saw flights of Ducks, was never but once near enough to identify them; the exception was in the case of the following species. *. G.

201. MARBLED DUCK. *Anas angustirostris*.

I recognized a small flight of Ducks as belonging to this species on the shores of the Bay of Episkopi, April 15, 1875, and early in the following month my yacht-captain, in my presence, shot a female, which evidently had a nest, near Limasol. Guillemard obtained a nest and eggs of this Duck

at Famagusta Lake (*cf.* Ibis, 1889, p. 216). I have some reason to believe that this is the species referred to in Unger and Kotschy's original list, published in 'Die Insel Cypern,' as "*Anas? cypria*, Sibth. Παπερό ψάρο." *

202. GADWALL. *Anas strepera*.

I can find no record of this Duck from Cyprus, except that its name occurs in Guillemard's handwriting in our joint rough list to which I have previously alluded.

203. SHOVELLER. *Anas clypeata*.

Cf. Guillemard, Ibis, 1889, pp. 211, 212, 219. *. G.

204. PINTAIL. *Anas acuta*.

Cf. Guillemard, Ibis, 1889, pp. 211, 212. *. G.

205. TEAL. *Anas crecca*.

Cf. Guillemard, Ibis, 1888, p. 108, and 1889, p. 211. *. G.

206. GARGANEY. *Anas circia*.

Cf. Guillemard, Ibis, 1889, p. 215. *. G.

207. WIGEON. *Mareca penelope*.

Cf. Guillemard, Ibis, 1889, pp. 208, 211. *. G.

208. POCHARD. *Fuligula ferina*.

I can find no mention of this species by Guillemard, but there is a female amongst the birds collected by him for me in Cyprus, which is labelled in his handwriting "Famagusta, 16/3/88." *. G.

209. TUFTED DUCK. *Fuligula cristata*.

Cf. Guillemard, Ibis, 1889, p. 213. *. G.

210. WHITE-EYED DUCK. *Fuligula nyroca*.

Cf. Guillemard, Ibis, 1889, p. 213. *. G.

211. SCOTER. *Ædemia nigra*.

Cf. Guillemard, Ibis, 1889, p. 215.

212. CORMORANT. *Phalacrocorax carbo*.

Cf. "*Carbo cormoranus*," Unger & Kotschy, *op. supra cit.*, and possibly "Cormorants," Guillemard, Ibis, 1888, p. 102. No specimen of this species was obtained by us, and I can

state, without any hesitation, that the few birds of this family observed by me on the coasts of Cyprus were of the following species.

213. SHAG. *Phalacrocorax graculus*.

Observed occasionally off the south coast in pairs or singly in April or May 1875. I received an immature light-breasted specimen of this species, without label, in January 1889, through Guillemard, from Captain Young of Famagusta. *.

214. DALMATIAN PELICAN. *Pelecanus crispus*.

Cf. Tristram, apud Dresser, 'Birds of Europe,' vol. vi. p. 200. Guillemard, in our rough list, writes after *Pelecanus*, "both species."

215. ROSEATE PELICAN. *Pelecanus onocrotalus*.

I include this species solely on the authority of Guillemard, as quoted immediately above. I am inclined to think that this species is at least as common as *P. crispus* in Cyprus, for the peasants assured us that the "Ass-headed Swans" which visit the salt-lakes in the winter were as white as the snow on Troodos.

216. COMMON TERN. *Sterna fluviatilis*.

Not uncommon on the coast near Famagusta and Salamis in April and May. *.

217. LITTLE TERN. *Sterna minuta*.

I may repeat the above sentence with regard to this species. *.

218. CASPIAN TERN. *Sterna caspia*.

Cf. Guillemard, Ibis, 1888, p. 113. I clearly distinguished two of these Terns near Limasol early in May 1875, and feel but little doubt about having seen the species on the coasts of Cyprus on other occasions.

219. WHITE-WINGED BLACK TERN. *Hydrochelidon leucoptera*.

Very abundant, apparently arriving about the 11th of May. I first saw this species near Ktima on the 12th

month, and Guillemard (*Ibis*, 1889, p. 219) records it as abundant on the lake of Famagusta on the 20th. *.

220. BLACK TERN. *Hydrochelidon nigra*.

Cf. Guillemard, *Ibis*, 1889, p. 219. I did not distinguish this bird in Cyprus. *. G.

221. PEEWIT GULL. *Larus ridibundus*.

Cf. Unger & Kotschy and Müller, *opp. supra cit.* I can find no other record of this species in Cyprus. I cannot consent to call this species "*black-headed*," as I could never detect any black about the heads of the great number that I have watched and examined. I hesitate to apply the literal translation of the Latin specific name, as "*Laughing*" Gull has been generally applied to the American *L. atricilla*; and I shall be infinitely obliged to any brother of 'The Ibis' or other ornithologist who can suggest an appropriate name for this bird in the vernacular of England.

222. BLACK-HEADED GULL. *Larus melanocephalus*.

We often saw, and more often heard, these beautiful Gulls passing high over the neighbourhood of Larnaca between April 16 and 21, 1875, but it was not till the 22nd, the morning after our arrival off Famagusta, that we came to close quarters with this species on the coasts of Cyprus. Here we found a flock of certainly some thousands, all in perfect nuptial plumage, haunting the inner harbour, and with a number of Lesser Kestrels wheeling amongst them, a little flat peninsula densely overgrown with cyclamen in the foreground, and the imposing ruins of the old town in the background, forming a picture which will ever be bright amongst my many pleasant reminiscences of Cyprus. The next day this vast assemblage of Gulls had entirely left the harbour, and we fell in with them some eight miles further up the coast in, I think, still larger numbers. I have no record in my journal of meeting with this Gull again in Cyprus. *Cf.* Guillemard, *Ibis*, 1888, p. 111. *.

223. LITTLE GULL. *Larus minutus*.

I can find no mention by Guillemard of this species, but

he brought back two females in immature plumage, labelled respectively "Lake near Famagusta, 13/2/88," and "Kouklia, 28/2/88." *. G.

224. SLENDER-BILLED GULL. *Larus gelastes*.

I find this bird in our rough list noted in Guillemard's handwriting. A solitary individual of this species was seen by me in the Gulf of Makri, Asia Minor, May 22, 1875. I am inclined to think that the three species of Gull just noticed merely pay passing visits to Cyprus on their return migration to their breeding-quarters further north.

225. COMMON GULL. *Larus canus*.

Cf. Unger & Kotschy and Müller, *op. supra cit.*

226. YELLOW-LEGGED HERRING GULL. *Larus leucophæus*.

Often observed, but not very abundant. Müller (*op. supra cit.*) states that this Gull in Cyprus "breeds on the roofs of the houses," but Guillemard could obtain no evidence in support of this statement. *.

227. LESSER BLACK-BACKED GULL. *Larus fuscus*.

Common in small numbers on the coasts of Cyprus in April and May. All the specimens of this Gull seen and obtained by us were in full adult plumage. *.

228. GREATER BLACK-BACKED GULL. *Larus marinus*.

Cf. Unger & Kotschy, *op. supra cit.* Guillemard notes this species in our rough list, with the remark, "(adult, Famagusta Lake)."

229. GREATER MEDITERRANEAN SHEARWATER. *Puffinus kuhli*.

Cf. "*Puffinus major*, Μέκω," Unger & Kotschy, *op. supra cit.* I observed a large Shearwater once or twice off the south coast of Cyprus.

230. LESSER MEDITERRANEAN SHEARWATER. *Puffinus*, sp. inc.

This species, which I believe to be still undescribed, we noticed in small numbers off the west coast of the island in May 1875, as we were working our way, with continued

light head-breezes and protracted calms, from Cyprus to Rhodes. For my own views on this Shearwater, *cf.* Ibis, 1887, p. 262.

231. LITTLE GREBE. *Podiceps fluviatilis*.

Cf. Guillemard, Ibis, 1888, p. 113. *. G.

In bringing my list to a conclusion, I will only say that I cannot consider it as by any means a complete one of the birds of Cyprus. My own visit to the island was of short duration, and my excursions were hampered by a variety of causes. Pearse's collections were very meagre and unsatisfactory, and I have reason to believe that many specimens collected by him for me never reached my hands. It is to Dr. Guillemard that we are principally indebted for the little that has reached us on the subject of Cyprian ornithology, and he was much hindered by bad weather, as also, I fear, more than he has told us, by ill-health, and by that which is always with the traveller in Cyprus, the stolid apathy and untruthfulness of the Greek natives. I would strongly advise any young member of the B. O. U. who may be hesitating whither to take a three-months' run on the shores of the Mediterranean, to lay his course for Cyprus, and to manage to arrive there about the middle or end of January, to take a good retriever, an abundant supply of insect-powder and arscnical soap, and a well-rooted disbelief in the modern Greek.

XXXIII.—*Notes on some recently described Species of Dendrocolaptidæ.* By P. L. SCLATER.

(Plate XI.)

THE authorities of the U.S. National Museum have lately most kindly sent me over for examination the typical specimens of some newly described species of Dendrocolaptidæ which I was anxious to see. Amongst them is an example of the striking new form, *Berlepschia rikeri**, of which, by the kind permission of the lenders, I am able now to give a

* *Picolaptes rikeri*, Ridgw. Pr. U.S. N. M. ix. p. 523 (1886); *Berlepschia rikeri*, Ridgw. op. cit. x. p. 151 (1887).

forma (Plate XI). As lately pointed out by Mr. Ridgway, this species agrees with *Picolaptes* as at first described, but the nostrils are slightly stiffened, the bill is more slender, and may, perhaps, be compared to that suggested near *Pseudocolaptes* by Mr. Ridgway. *Dendrocolaptes* in general is distinguished from the upper species by the nostrils being more elevated, the bill being much more slender, and the tail-feathers being twelve in number. *Dendrocolaptes*, however, has much more of the appearance of *Picolaptes*.

The upper surface of the head is seen by the bill, the nostrils, and back of the head, and the sides of the head. A small, dark, under surface is carried over the head.

The species of Mr. C. B. Baker, of Connecticut, is a new one with other species of the same genus. It is a new species of the same genus. It is a new species of the same genus. It is a new species of the same genus.

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figure (Plate XI.). As lately pointed out by Mr. Ridgway, *Berlepschia* has nothing to do with *Picolaptes*, as at first supposed, although the tail-feathers are slightly stiffened, but belongs to the subfamily Philydorinæ, and may, perhaps, be most conveniently placed, as he has suggested, near *Pseudocolaptes*. But *Berlepschia* differs from *Pseudocolaptes* in its longer, thinner, and more compressed bill, with the upper mandible rather more incurved and the culmen more elevated. Besides this, the wings are more pointed, the tarsi shorter, and the feet much weaker. The rectrices are twelve in number, much graduated, as in *Pseudocolaptes*, but much more pointed at their ends.

The coloration of this curious type is, as will be seen by our figure, quite peculiar, although the ferruginous-red back and tail at once betray its Dendrocolaptine affinities. A curious point is that the barred under surface is carried down completely over the crissum.

Berlepschia is one of the discoveries of Mr. C. B. Riker, of New York city, and was obtained by him along with other birds, of which Mr. Ridgway has lately given us a list (Pr. U.S. N. M. x. p. 516), at Diamantina, a plantation near Santarem, on the Lower Amazons, in June and July 1887.

I subjoin Mr. Ridgway's description of the species :—

“ Head and neck streaked with deep black and pure white, the streaks narrowest on auriculars, the white ones narrower on pileum and cervix, broader on chin and throat, where the black is reduced to a narrow edging to the feathers; remaining lower parts black, varied with white, the markings changing gradually from an irregular rhomboid and guttate longitudinal form on chest, to regular transverse bars on lower tail-coverts, where the white bars are decidedly narrower than the black ones; back, scapulars, wing-coverts, tertials, rump, upper tail-coverts, and tail uniform bright rufous, the feathers of back with slightly paler shafts; secondaries with outer webs partly or wholly rufous; alula, primary-coverts, primaries, and inner webs of secondaries plain dull black. Length (skin) 8 inches, wing 4·10, tail 3·65, culmen (exposed) 1·20, bill from nostrils ·78, tarsus ·80.”

I add some remarks on the other types of Dendrocolaptidæ in the U.S. Nat. Museum, which have been sent to me for examination.

(1) PHACELLODOMUS INORNATUS, Ridgway, Pr. U.S. Nat. Mus. 1887, p. 152.

I confess I am not inclined to separate this Venezuelan form specifically from *P. frontalis*. Two specimens from Venezuela in my collection show the rufous front very plainly, though it is not quite so well marked as in typical Brazilian skins. I have examined specimens of what I consider is the same bird from Peru (*Stolzmann*), Pernambuco (*Forbes*), Bahia (*Wucherer*), Matto Grosso (*H. H. Smith*), Bolivia (*Bridges*), and Salta, rep. Arg. (*Durnford*).

(2) DENDRORNIS PUNCTIGULA, Ridgw. MS.

This form from Costa Rica I consider barely separable from *Dendrornis erythropygia*, originally described from Mexico (P. Z. S. 1859, p. 366), but of which I have a series before me, in my own and the Salvin-Godman collections, extending through Central America to Panama, Ecuador, Venezuela, and Bolivia. The principal question, to my mind, is whether the difference between *D. erythropygia* and the nearly allied *D. triangularis* can be maintained. The main distinction is the red rump of *D. erythropygia*, which is not apparent in *D. triangularis* of the highlands of Colombia*.

* It is only fair to say that Mr. Ridgway does not accede to this view. He writes to me as follows upon this point:—

“As to the *Dendrornis*, I admit that my ‘new’ bird is what *has been called D. erythropygia*, from Costa Rica and Veragua, but, at the same time, claim that it is different. True *D. erythropygia*, from Guatemala and Southern Mexico, is a smaller bird, with smaller and more curved bill, much lighter coloration, especially above, where the hind neck and upper back are conspicuously streaked, and with the markings on the throat narrower, or in the form of bars or lunules rather than spots. In fact, the Central-American (*i. e.*, Costa-Rican and Veraguan) bird looks to me much more like *D. triangularis*, from Colombia and Ecuador, the principal difference being that *D. triangularis* has the pileum and nape distinctly ‘guttated’ and the rump less rufescent. These distinctions I find fully borne out by the following series, now before me:—

(3) *DENDROORNIS LAWRENCII*, Ridgw. Pr. U.S. Nat. Mus. 1887, p. 509 (Panama).

(4) *DENDROORNIS LAWRENCII COSTARICENSIS*, Ridgw. op. cit. p. 510 (Costa Rica).

I am sorry to be obliged to differ with Mr. Ridgway, but I am still of opinion that the Panama bird, which he now proposes to call *D. lawrencii*, and its Costa-Rican representative cannot be separated from *D. susurrans*. I have lately had a large series before me from Honduras, Costa Rica, Veragua, Panama, Santa Marta, Venezuela, Trinidad, and Tobago—between thirty and forty specimens. There is much individual variation; but in the Dendrocolaptinæ such is usually the case, and some of the Panama skins of this bird are quite like the Tobago birds, upon which the species was founded.

Mr. Lawrence has called this bird *D. pardalotus* and *D. guttata*; and if his *D. nana* is different, I am not acquainted with it. See remarks by Mr. Salvin and myself upon this subject, P. Z. S. 1870, p. 839.

(5) *PICOLAPTES GRACILIS*, Ridgw. (Costa Rica).

This species is quite new to me, and different from anything I know. It is remarkable for its short bill and small size.

(6) *DENDROCINCLA RUFO-OLIVACEA*, Ridgw. Pr. U.S. Nat. Mus. 1887, p. 493.

This is the bird I call *D. fuliginosa* (Vieill.)—a species not identified by Mr. Ridgway in his monograph. I have specimens from British Guiana (*Whitely*) and Para (*Wallace*), and there are others in the Salvin-Godman collection.

(7) *DENDROCINCLA CASTANOPTERA*, Ridgw. op. cit. p. 494. I have examples of the same bird from Surinam (*Bartlett*)

	Total.
" <i>D. erythropygia</i> : Mexico, 1; Guatemala, 8 specimens	9
" <i>D. punctigula</i> : Costa Rica, 8; Veragua, 1	9
" <i>D. triangularis</i> : Turbo, 1; 'Bogota,' 1; Guayaquil, 1	3
	<hr/> 21 "

and Borba (*Natterer*), and Messrs. Salvin and Godman have it from British Guiana (*Whitely*) and Chamicuros, E. Peru. I refer them all to *D. merula* (Licht.).

(8) *DENDROCOLAPTES OBSOLETUS*, Ridgw. Pr. U.S. Nat. Mus. 1887, p. 527 (Lower Amazons).

I have nearly similar examples from Para (*Wallace*) and Pernambuco (*Forbes*), but have not ventured to separate them from *D. certhia* (Bodd.).

(9) *SCLERURUS CANIGULARIS*, Ridgw. (Costa Rica).

This appears to be the same as the Venezuelan bird which Mr. Salvin and I call *S. albigularis*. See P. Z. S. 1868, p. 630.

XXXIV.—Notes on Woodpeckers.—No. XVII. On an apparently unnamed Species of *Picumnus* from Guiana. By EDWARD HARGITT, F.Z.S.

THERE has been great diversity of opinion as to the *Picumnus* described by Linneus as *Pipra minuta*, Dr. Cabanis taking it to be the Guianan species (for which I am about to propose a new name), while Sundevall considers Linneus's bird to have belonged to the Brazilian species, which has the colour much more yellow and the back spotted with black. Linneus's type existed in the Museum of Adolphus Frederick at Stockholm, and the view taken by the eminent Director of the Stockholm Museum (possibly derived from those who may have seen the type, or from tradition) is, to my mind, the one which ought to be adopted. I have examined the specimens in the Stockholm Museum named *P. minutus* by Sundevall, and they belong (without doubt) to the Brazilian species, not to the Guianan *P. minutus* of Cabanis. The latter name being preoccupied, and no other being applicable to the Guianan bird, I propose for it the title of *Picumnus undulatus*, and add a brief diagnosis of its characters.

PICUMNUS UNDULATUS, sp. n.

♂. Similar to *P. minutus* (Linn.), but distinguished by

its darker and brownish-olive upper parts, crossed by broad and wavy dusky markings and by narrow wavy markings of yellow; the spotting upon the wing-coverts less distinct; the under surface of the body very much less yellow. Total length 3·5 inches, culmen 0·4, wing 2·1, tail 1·1, tarsus 0·5.

♀. Differs from the male in having the forehead and crown like the occiput and nape, black, spotted with pure white.

The types are in my collection, the male being from Roraima, British Guiana, 5000 feet, Aug. 20 (*H. Whitely*); the female from Camacusa, May 3rd (*H. Whitely*).

XXXV.—*On the European Cuckoo and its Indian Allies.*

By EUGENE W. OATES, F.Z.S.

THE three allied species of Cuckoos which inhabit the Indian Empire have hitherto been considered separable only on the ground of size, and two of them, those most closely allied to each other, further on the score of their having different notes.

My object in writing the following is to show that their separation rests on a better and a more satisfactory basis than that of size and the practically useless character which a vocal note affords.

This basis is that of the plumage of the young, which differs conspicuously in each species and affords conclusive evidence that the three birds are quite distinct *ab ovo*.

All the Cuckoos of the *Cuculus canorus* type have the plumage of the young very complex. There is no evidence whatever to show that the young Cuckoo moults either in the first autumn or in the following spring; and the evidence on the other hand is overwhelming that from the nestling-stage to the adult plumage the change is effected by a continual and never-ceasing alteration in the colour of the feathers. These changes are systematic and subject to rule in each species; but owing to individual temperaments hardly two young birds will ever be found to be exactly alike. But the

moult in the second autumn brings them all up to the one level of the fully adult plumage. The changes, however, that take place between the first spring and the second autumn are trivial compared to those that take place from the time of birth up to the first spring, in other words during the first winter.

The adults of the three Indian *Cuculi* are not always to be discriminated with certainty. There are some specimens which might be relegated indifferently to one or other of the two species between which they lie. Such specimens, however, are not very numerous. The following Key will, I think, suffice in most cases for the identification of the adults:—

- a. Wing measuring between 8 and 9 inches in length;
bars on the lower plumage narrow, wavy, interrupted *canorus*.
- b. Wing measuring between 6·5 and 7·8 inches in length; bars on the lower plumage broader, straighter, continuous *striatus* *.
- c. Wing seldom exceeding 6 inches in length; the lower plumage richly coloured *poliocephalus*.

The females of all three species are generally distinguishable from the males by the presence of a rufous band across the breast.

Turning to the young, we find that in *Cuculus canorus* there are two well-defined stages of plumage, the brown and the rufous.

The nestling is of a dark brown above, indistinctly barred with rufous, and each feather also indistinctly edged with white; there is a well-defined white nuchal spot. The lower plumage is barred with black and white, the bars being of about equal thickness on the abdomen, but the black ones being broader than the white ones on the throat and breast. Before the nestling is quite fully fledged the white margins of the feathers of the upper plumage become very much reduced in size, and the rufous bars on the same parts disappear

* This name and the next are provisional, as I have not yet gone into the question of the exact names these Cuckoos should bear.

except on the wings ; the tail is very similar to that of the adult, but there are a few broken rufous bars on it.

In the second stage the whole upper plumage, the wings, and the tail become regularly and finely barred with pale rufous ; the black bars on the lower plumage become narrower and more sharply defined, and the nuchal spot is still present, either as a spot, or indicated by one or more white feathers.

The transition from the first stage to the second is very gradual, and so it is also from the second stage to the adult plumage. In many birds as soon as the second stage of plumage is donned traces of the adult plumage begin to make their appearance, generally by the acquisition of ashy patches on the upper parts. The nuchal spot is retained till some such ashy patches appear, and is then lost.

Cuculus striatus similarly passes through two stages of plumage, in both of which the white nuchal spot is absent.

In the nestling or first stage the upper plumage is blackish, the feathers of the wing marked with rufous, the others margined with white. The chin and throat are entirely black, occasionally with a trace of white here and there, but with nothing approaching to bars. The remaining lower parts are white broadly banded with black. The tail is similar to that of the adult, but with some rufous on the edges of the feathers in somewhat older birds.

In the second stage the whole upper plumage, with the tail, is blackish, barred throughout with dark rufous (not pale rufous), and the throat becomes deeply tinged with rufous. The white margins of the upper plumage are cast, and the black bands on the lower plumage become very broad.

In *Cuculus poliocephalus* the young pass through three distinct stages :—

The first stage is exactly the same as that of *C. striatus*, there being, equally with that species, no nuchal spot.

In the second stage the white nuchal spot appears and a half-collar of white on the hind neck. In other respects the plumage in this stage is very similar to that of the first stage of *C. canorus*.

In the third stage the whole upper plumage, wings, and tail are *bright chestnut* barred with black; the lower plumage is very regularly barred with black, and the throat and breast are tinged with deep chestnut; the nuchal spot and the half-collar are absent.

In attaining mature plumage, the black bars on the neck, rump, and upper tail-coverts are the first to disappear and to give place to ashy patches.

It is sufficiently evident from the above descriptions that the young of the three species are quite distinct in coloration, taking birds of the same age together for comparison, and that in some stages there is a plumage which cannot be matched by any other stage of either of the other species.

To render these remarks of some practical utility it will be necessary now to focus the differences and to point out how they may be of service in determining the species when young birds only are under examination.

In the young nestling-stage, when size goes for nothing, and the wing is not grown to allow of measurement, the white nuchal spot will separate *C. canorus* from the other two Cuckoos. This spot will also at all ages serve to separate it from *C. striatus*, but not from *C. poliocephalus*, from which latter, however, it can be distinguished, when the nuchal spot is no longer a character, by its much greater size and pale rufous coloration.

C. striatus and *C. poliocephalus* in the mere nestling-stages cannot, I think, be separated except by size; but once the nuchal spot and the half-collar are assumed by the latter there is no difficulty whatever.

All three birds, in their rufous stage, are easy to separate: *C. canorus* is pale rufous; *C. striatus* dark rufous, with coarse bars; and *C. poliocephalus* chestnut, delicately barred.

I do not put forward the above characters as infallible. I merely wish to point out that in all three species the young pass through peculiar phases of plumage, which show them to be very distinct. It would not be difficult to find a young bird now and again the plumage of which sets these general laws at defiance; but I consider that, interpreted

broadly and liberally, the above-given diagnoses will generally suffice for the identification of the species.

In the Cuckoos especially it is necessary to have some clue to the young plumage, for the reason that the parents can never be shot along with the nestling. All the three species of Cuckoo now noticed breed in some part or other of India, and a complete knowledge of their geographical distribution in the breeding-season can only be obtained by the correct identification of skins in museums, especially those of young birds.

XXXVI.—*A List of the Birds of the Islands of the Coast of Yucatan and of the Bay of Honduras.* By OSBERT SALVIN, M.A., F.R.S., &c.

[Continued from 'The Ibis,' 1888, p. 265.]

89. MYIOPAGIS PLACENS.

Elainea placens, Scl. ? ; Ridgw. Proc. U.S. Nat. Mus. viii. p. 571 ; Scl. Cat. B. Brit. Mus. xiv. p. 148.

Myiopagis placens, Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 26.

Mugeres I. (December) ; Cozumel I. (January, April).

Many specimens, agreeing with a large series from the mainland of Central and South America.

90. ORNITHION IMBERBE.

Camptostoma imberbe, Scl. P. Z. S. 1857, p. 203.

Ornithion imberbe, Scl. Cat. B. Brit. Mus. xiv. p. 126 ; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 29.

Cozumel I. (January, April).

This little bird is now known to have a very extended range, being found from Texas to South Brazil. It is probably resident wherever it occurs.

91. ELAINEA MARTINICA.

Elainea martinica (Linn.) ? ; Ridgw. Proc. U.S. Nat. Mus. viii. p. 571 ; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 36.

Meco I. November; Mugeret I. December; Holbox I. December; Cozumel I. April; Half-Moon Cay May, O. H.,.

Most of these birds are very grey beneath, and if *E. pagana* is to be kept separate from *E. martinica*, they must be placed with the latter rather than with the former. This has already been done by Mr. Ridgway, though with some hesitation. The Cozumel birds are the most typical, the more northern ones being slightly tinged with yellow. In Mr. Sclater's recent Catalogue the Cozumel skins are all called *E. pagana*, without comment, and the reference to Mr. Ridgway's note is omitted.

E. martinica has already been traced to Grand Cayman Island.

92. PITANGUS DERBIANUS.

Pitangus derbianus (Kaup); Scl. Cat. B. Brit. Mus. xiv. p. 175; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 43.

Meco I. (November); Mugeret I. (December); Cozumel I. Precisely like the mainland birds.

93. MYIOBIUS SULPHUREIPYGUS.

Myiobius sulphureipygius (Scl.); Scl. Cat. B. Brit. Mus. xiv. p. 200; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 57.

Cozumel I.

A single specimen agreeing accurately with mainland birds.

94. PYROCEPHALUS RUBINEUS.

Pyrocephalus rubineus (Bodd.); Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 60.

Pyrocephalus mexicanus, Scl. Cat. B. Brit. Mus. xiv. p. 213. Cozumel I.

Many examples agreeing with birds from the mainland, where the species is found in many parts of Mexico, Yucatan, and the pine-districts of British Honduras.

95. EMPIDONAX ACADICUS.

Empidonax acadicus (Gm.); Scl. Cat. B. Brit. Mus. xiv. p. 228; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 70.

Ruatan I.

Several specimens of this bird agree with others from Washington bearing the name *Empidonax acadicus*. We have no record of the occurrence of the species in Guatemala, but an example from Costa Rica in our collection seems undoubtedly referable to it.

96. EMPIDONAX MINIMUS.

Empidonax minimus, Baird; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 72.

Empidonax gracilis, Ridgw. Proc. U.S. Nat. Mus. viii. p. 571. Holbox I. (December); Mugerres I. (December); Cozumel I.

Several examples agreeing accurately with typical North-American birds.

E. gracilis was founded on a single alcoholic specimen, its grey tints doubtless due to the method of preservation.

97. CONTOPUS VIRENS.

Contopus virens (Linn.); Scl. Cat. B. Brit. Mus. xiv. p. 238; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 84.

Ruatan I.

All the birds from Ruatan are large and agree best with northern skins of *Contopus virens*. The species has also been obtained on the opposite coast of Honduras at San Pedro.

98. CONTOPUS BRACHYTARSUS.

Contopus brachytarsus (Scl.); Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 86.

Contopus schottii, Lawr.?; Ridgw. Proc. U.S. Nat. Mus. viii. p. 571.

Cozumel I.

Mr. Gaumer's collection contains many specimens of this small *Contopus*.

Contopus schottii, of Yucatan, is now generally admitted to be the same as *C. brachytarsus*.

99. MYIARCHUS MAGISTER.

Myiarchus magister (Ridgw.); Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 89.

Myiarchus mexicanus, Scl. Cat. B. Brit. Mus. xiv. p. 250.

Cozumel I.; Ruatan I.

We have lately written at some length upon this bird, which is the same as that found in the Rio Grande valley, the State of Vera Cruz, Yucatan, &c. It has often been called *M. cooperi* and *M. mexicanus*, but neither of these names can, in our opinion, be used for it. We have therefore employed Mr. Ridgway's title, *M. magister*, for it, which is, however, more strictly applicable to a larger form found in Arizona and North-western Mexico.

100. MYIARCHUS YUCATANENSIS.

Myiarchus yucatanensis, Lawr.; Scl. Cat. B. Brit. Mus. xiv. p. 260; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 93.

Cozumel I.

Two specimens, having the upper surface, especially the head, slightly darker than a third from Northern Yucatan, which has been compared and found identical with the type of *M. yucatanensis*.

The species is a fairly definite one, but is very like *M. lawrencii* of Eastern and North-eastern Mexico.

101. MYIARCHUS LAWRENCII.

Myiarchus lawrencii (Giraud); Scl. Cat. B. Brit. Mus. xiv. p. 256; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 94.

Myiarchus lawrencii olivascens, Ridgw.

Myiarchus platyrhynchus, Ridgw. Proc. U.S. Nat. Mus. viii. p. 570.

Cozumel I.; Ruatan I.

Many examples. A very common but variable bird in Mexico and Central America, as well as on the mainland of Yucatan, from which these island-birds present no tangible differences; but I notice that the throat is a trifle paler than in Guatemalan examples.

Mr. Ridgway kindly sent me his type of *M. platyrhynchus* for examination, and I came to the conclusion that it belonged to *M. lawrencii*, the normal yellow colour of the plumage having been removed by alcohol.

102. TYRANNUS PIPIRI.

Tyrannus pipiri, Vieill.; Scl. Cat. B. Brit. Mus. xiv. p. 267; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 97.

Cozumel I. ; Ruatan I.

Apparently common on both these islands. We likewise observed it on some of the coral islands off the coast of British Honduras and at Yzabal on the mainland in September. It is also common in Northern Yucatan in April and May. In the interior of Guatemala this Tyrant seldom occurs, but we have an example from Retalhuleu, on the coast-lands bordering the Pacific. Its southern range extends to Ecuador, Peru, Bolivia, and the Amazons valley.

103. *TYRANNUS GRISEUS.*

Tyrannus griseus, Vieill. ; Scl. Cat. B. Brit. Mus. xiv. p. 271 ; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 98.

Tyrannus dominicensis (Gm.), Ridgw. Proc. U.S. Nat. Mus. viii. p. 570.

Cozumel I. (*Benedict*).

Mr. Gaumer's collection does not contain specimens of this species. Besides the Larger Antilles, this bird occurs on the mainland on the Isthmus of Panama and in Northern Colombia.

104. *TYRANNUS MELANCHOLICUS.*

Tyrannus melancholicus, Vieill. ; Scl. Cat. B. Brit. Mus. xiv. p. 273 ; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 101.

Tyrannus melancholicus couchi, Ridgw. Proc. U.S. Nat. Mus. viii. p. 570.

Meco I. (November) ; Holbox I. (December) ; Mugerres I. (December) ; Cozumel I.

Many examples agreeing with the mainland bird, where the species is most abundant.

105. *TYRANNUS MAGNIROSTRIS.*

Tyrannus magnirostris, d'Orb. ; Scl. Cat. B. Brit. Mus. xiv. p. 273 ; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 103.

Mugerres I. (Feb. 25, 1886).

This is the first instance recorded of the occurrence of this species on this coast. Cuba is its recognized domicile, but it has also been noticed on the Bahama Islands.

106. *PIPRA MENTALIS*.

Pipra mentalis, Scl. Cat. B. Brit. Mus. xiv. p. 295.

Meco I. (November); Muges I (December).

These specimens agree accurately with mainland birds. The species has a wide range from Southern Mexico to Panama.

107. *HADROSTOMUS AGLAIÆ*.

Hadrostomus aglaïæ (Lafr.); Scl. Cat. B. Brit. Mus. xiv. p. 335.

Holbox I.; Cozumel I.

The female I left undetermined from Mr. Devis's collection is placed by Mr. Sclater with this species. Nevertheless it has a bill much larger than typical examples of *H. aglaïæ*. Examples from Northern Yucatan have bills larger than usual, and the males are of a rather pale colour. With my present materials I think it best to adhere to Mr. Sclater's determination.

108. *ATTILA COZUMELÆ*.

Attila cozumelæ, Ridgw. Proc. U.S. Nat. Mus. viii. p. 572.

Attila, sp.?, Salv. Ibis, 1885, p. 191.

Cozumel I.

Many examples.

This seems to be a species distinct from *A. citreopygius*.

109. *ATTILA CITREOPYGIUS*?

Attila citreopygius (Bp.); Scl. Cat. B. Brit. Mus. xiv. 361.

Meco I.; Holbox I.; Muges I.

The birds from these more northern islands agree better with those of the mainland than with the Cozumel birds. They have paler rumps, and several of them a slight wash of olivaceous over the chest. I do not at present understand the variations found in several forms of *Attila*, *A. citreopygius* amongst them, so that I am obliged to leave the accurate determination of them for the present.

110. *DENDRORNIS FLAVIGASTER*.

Dendrornis flavigaster (Sw.).

Dendrornis eburneirostris (Less.); Scl. Cat. Am. B. p. 164.

Tuloom, E. coast of Yucatan; Meco I.

A widely ranging mainland species.

111. *DENDROCINCLA HOMOCHROA*.

Dendrocincla homochroa (Scl.); Cat. Am. B. p. 162.

Meco I.; Mugerres I.

A species abundant on the opposite mainland.

112. *THAMNOPHILUS DOLIATUS*.

Thamnophilus doliatus (Linn.) et *T. affinis*, Cab. & Heine; Scl. Cat. Am. B. p. 175.

Meco I.

Very common throughout Central America, and also in Northern South America.

113. *LAMPORNIS PREVOSTI*.

Lampornis prevosti (Less.); Gould, Mon. Troch. ii. pl. 75.

Lampornis thalassinus, Ridgw. Descr. New Sp. B. Cozumel, p. 3.

Lampornis prevosti thalassinus, Ridgw. Proc. U.S. Nat. Mus. viii. p. 573.

Meco I.; Holbox I.; Mugerres I.; Cozumel I.; Bonacca I.

With a series of sixteen island specimens (14 ♂, 2 ♀) before me, I cannot distinguish this form from the common mainland bird, which extends from Southern Mexico to Costa Rica, and is abundant in British Honduras.

114. *TROCHILUS COLUBRIS*.

Trochilus colubris, Linn.; Gould, Mon. Troch. iii. pl. 131; Ridgw. Proc. U.S. Nat. Mus. viii. p. 573.

Holbox I.; Cozumel I.

115. *DORICHA ELIZÆ*.

Thaumastura elizæ (Less. & Delattre); Gould, Mon. Troch. iii. pl. 155.

Holbox I.

This Mexican species is found sparingly in Northern Yucatan.

116. *AMAZILIA CINNAMOMEA*.

Amazilia cinnamomea (Less.); Elliot, Syn. H. Birds, p. 219.

Amazilia corallirostris (Bourc. & Muls.); Gould, Mon. Troch. v. pl. 307.

Holbox I.

Also not uncommon in Northern Yucatan, and found over a large area in Central America.

117. CHLOROSTILBON CANIVETI.

Chlorostilbon caniveti (Less.); Gould, Mon. Troch. v. pl. 351.

Ruatan I.; Bonacca I.

Birds from these islands seem inseparable from *C. caniveti* from the mainland. The rectrices, however, seem unusually broad, the central pair not so short, so that the tail is not so deeply forked as in *C. caniveti*. These points seem hardly constant enough to justify the separation of these Bay-Island birds. There is a marked contrast between them and the Cozumel-Island bird as regards the elongation of the outer rectrices.

118. CHLOROSTILBON FORFICATUS.

Chlorostilbon forficatus, Ridgw. Proc. U.S. Nat. Mus. viii. p. 574.

Chlorostilbon caniveti, Salv. Ibis, 1885, p. 191.

Mugers I.; Holbox I.; Cozumel I.

These birds are exceedingly like *C. auriceps*, and I have long hesitated whether to keep them separate or not. The uncertainty as to the true domicile of *C. auriceps* added to my doubts. This point has now been settled, as Mr. Smith's collection from the State of Guerrero contains a single example of the true *C. auriceps*, which, though not quite adult, is sufficiently advanced in plumage to leave no room for doubt as to its name.

It now appears that *C. forficatus* can generally be distinguished by its greener, less golden crown, and rather broader lateral rectrices.

Some of the specimens from Holbox Island have the outer rectrices much shorter than others, and are thus hardly to be separated from the mainland *C. caniveti*. Mr. Devis's specimen, called by me *C. caniveti*, is a fragment, and most of the tail-feathers are wanting.

119. CHÆTURA GAUMERI.

Chætura gaumeri, Lawr. Ann. New York Ac. Sc. ii. p. 246.

Chætura yucatanica, Lawr. loc. cit. iii. p. 156 (?).

Cozumel I. (April).

Many specimens, varying from 3·9 inches to 4·6 in the length of the wing.

Mr. Lawrence has described a second species of *Chætura*, allied to his *C. gaumeri*, under the name of *C. yucatanica*, its differences being stated to consist in its smaller size (wing 3·9 instead of 4·25), more ashy throat, darker abdomen, blacker tail, and more tapering tail-feathers.

It appears from the series before me that the recorded measurements of *C. gaumeri* and *C. yucatanica* completely overlap; and as there is some diversity in the coloration, I feel doubtful whether there are really two species in Yucatan distinct from one another and from *C. vauxi*.

Regarding the latter species, Mr. Lawrence refers a specimen shot by me near Dueñas on February 6, 1860, and sent to the Smithsonian Institution as *C. vauxi*, to his *C. gaumeri*. But two specimens before me, shot at the same place and on the same afternoon out of the same flock, seem to me to be inseparable from *C. vauxi*, of which I have several specimens before me so named by Mr. Henshaw. These are generally larger than the Cozumel bird, and not nearly so dark on the abdomen.

The extent to which the spines of the tail-feathers are worn in our series of *C. gaumeri* varies very much. In some they are long and perfect, in others worn to the webs of the feathers, so that no specific character can be drawn from this source.

In our collection we have a specimen from Chiriqui differing in no way from the Cozumel birds, showing that this Swift has really a very wide range.

120. CHÆTURA PELAGICA.

Chætura pelagica (Linn.) ; Baird, Brew., & Ridgw. N. Am. B. ii. p. 432.

Cozumel I. (April).

Four specimens sent by Mr. Gaumer agree accurately with examples from North America, including one from Washington sent us by the late Professor Baird. We have also a skin from Jalapa, Mexico, in our collection. These, with those now sent from Cozumel, give some indication of the winter abode of this species, concerning which we have hitherto known hardly anything.

121. *NYCTIBIUS JAMAICENSIS*.

Nyctibius jamaicensis (Gm.) ; Scl. Cat. Am. B. p. 278.

Ruatan I.

Two specimens of this widely ranging species, of which we have others from several places on the mainland, the most northern being the neighbourhood of Mazatlan, Western Mexico.

122. *CHORDEILES TEXENSIS*.

Chordeiles texensis, Lawr. ; Baird, B. N. Am. p. 154, pl. 44.

Chordeiles acutipennis, var. *texensis*, Baird, Brew., & Ridgw. N. Am. B. ii. p. 406.

Cozumel I. ; Ruatan I.

Many specimens of both sexes agreeing with our series from Mexico and Central America bearing this name. We trace the same bird as far south as the State of Panama.

123. *NYCTIDROMUS ALBICOLLIS*.

Nyctidromus guianensis (Gm.) ; Scl. Cat. Am. B. p. 281.

Mugeres I. ; Cozumel I.

A bird of very wide distribution in tropical America from the Rio Grande valley to Paraguay.

124. *DRYOBATES SCALARIS*.

Picus scalaris, Wagl. ; Salv. Ibis, 1885, p. 191.

Dryobates scalaris parvus (Cabot) ; Ridgw. Man. N. Am. B. p. 284.

Cozumel I.

The birds obtained by Mr. Devis are the only ones we have seen from Cozumel. These agree with specimens from the mainland called *Picus parvus* by Dr. Cabot, the *D. scalaris parvus* of Mr. Ridgway.

125. CENTURUS RUBRIVENTRIS.

Centurus rubriventris pygmæus, Ridgw. Proc. U.S. Nat. Mus. viii. p. 576.

Melanerpes pygmæus, Ridgw. Man. N. Am. B. p. 293.

Cozumel I. ; Bonacca I. (September).

Mr. Gaumer has sent us a good series of this species from Cozumel Island and four specimens from Bonacca Island ; we have also several from the mainland of Northern Yucatan. The average size of the island birds is rather small and the plumage rather dark, but the difference is very slight, and I have no difficulty in selecting a Cozumel bird with a wing as long as one from the mainland or others not to be distinguished in colour. The central tail-feathers in the island birds have a little more white towards the base ; this seems to be especially the case in the specimens from Bonacca Island.

All that can be said of this Woodpecker is that in Cozumel and Bonacca Islands it has a tendency to become smaller, to assume darker plumage, and to have whiter bases to the rectrices. If those that bear these characters are to be separated by name, others living with them in the same woods with normal plumage must be called simply *C. rubriventris*. I cannot think this a desirable plan to adopt.

C. rubriventris, -Mr. Gaumer says, is found on Bonacca Island to the exclusion of *C. canescens*.

126. CENTURUS DUBIUS.

Picus dubius, Cabot, Journ. Bost. Soc. N. H. v. p. 91.

Centurus dubius, Salv. Ibis, 1885, p. 192.

Centurus aurifrons dubius, Ridgw. Proc. U.S. Nat. Mus. iv. p. 108.

Centurus leei, Ridgw. Descr. New Sp. B. Cozumel, p. 3.

Centurus dubius leei, Ridgw. Proc. U.S. Nat. Mus. viii. p. 575.

Melanerpes leei, Ridgw. Man. N. Am. B. p. 293.

Meco I. (November) ; Cozumel I.

A specimen from Meco has a nearly pure white rump, with only the shafts of the longer coverts dark, and exactly corresponds with mainland specimens. The Cozumel bird

has a decided tendency to acquire a barred rump (*M. leei*, Ridgw.); but in the series before me I find every gradation to the typical form. As the extreme varieties of this Woodpecker occur together on one small island, a trinomial for it seems out of place. A distinct binomial, again, for one extreme form is not sufficient, without admitting the other extreme as coexisting in the same area, and then we have the further difficulty of dealing with the intermediate forms which are neither the one nor the other. The only way out of the difficulty is to call them all by the comprehensive name *C. dubius*.

The range of *C. dubius* is very extensive. Recent Mexican collections contain specimens from Teapa and from as far west as Playa Vicente, in the State of Vera Cruz. Here it almost touches the range of *C. santacruzi*, which is found near the town of Vera Cruz, at Atoyac, on the railway to the interior, and thence northwards along the coast to Tampico. In the Eastern Sierra Madre, near Victoria, *C. aurifrons* occurs, the prevalent species of the Rio Grande valley and the interior of Northern Mexico.

127. *CENTURUS CANESCENS*, sp. n.

C. dubio affinis, sed fasciis albis corporis superioris et alarum latioribus, remige tertio ad basin distincte albo fasciato, genis et corpore toto subtus plerumque albicantioribus, ut videtur, distinguendus.

Hab. Ruatan I., Bay of Honduras (*G. F. Gaumer*).

Mr. Gaumer's collection from Ruatan Island contains a large number of specimens of this Woodpecker, which, though closely allied to *C. dubius*, seems separable as an island-form, the characters, taken together, being sufficient to distinguish it. The pale colour of the cheeks and under plumage, compared with that of *C. dubius*, at once strikes the eye as a distinctive character, but we have a specimen or two from the mainland nearly, if not quite, as pale. The bar at the base of the third primary is more certain, this feather being nearly black in *C. dubius*.

This Woodpecker being restricted to the island of Ruatan, the slight characters by which it can be distinguished are of

more value than if it lived on the mainland, in which case I should not have ventured to separate it.

128. *EUMOMOTA SUPERCILIARIS*.

Prionites superciliaris, Sandbach, Rep. Brit. Assoc. 1837, p. 99.

Crypticus superciliaris, Jard. & Selb. Ill. Orn. iv. pl. 18*.

Eumomota superciliaris, Boucard, P. Z. S. 1883, p. 453.

Meco I. (December).

According to Mr. Gaumer this species is very common in Yucatan. It was originally described from specimens obtained in Campeche.

129. *CERYLE ALCYON*.

Ceryle alcyon (Linn.); Sharpe, Mon. Alced. p. 79, pl. 23.

Cozumel I.; Ruatan I.

Also found on the opposite mainland at Belize and Omoa.

130. *CERYLE SUPERCILIOSA*.

Ceryle superciliosa (Linn.); Sharpe, Mon. Alced. p. 93, pl. 28.

Cozumel I.

A single specimen of this widely ranging South-American species, which is also generally distributed throughout the low lands of Central America.

131. *TROGON MELANOCEPHALUS*.

Trogon melanocephalus, Gould, Mon. Troch. ed. 2, pl. 27; Boucard, P. Z. S. 1883, p. 454.

Meco I.

According to Mr. Gaumer, this species is not common in Yucatan. It is, however, widely distributed in Central America, and ranges northwards to the Mexican frontier State of Tamaulipas.

* Published before Jan. 1841 (see Jardine, Ann. & Mag. N. H. vi. p. 321). The first part of the first volume of the 'Illustrations of Ornithology' was issued in 1837, and contained six plates, and was to be followed by successive similar parts at intervals of six weeks or two months. Plate 18, if this course was followed, would have been published in 1838.

132. CROTOPHAGA ANI.

Crotophaga ani, Linn.; Ridgw. Proc. U.S. Nat. Mus. v. p. 577.

Ruatan I.; Cozumel I.

This, the common Antillean species of *Crotophaga*, is found on the mainland north of the State of Panama.

133. CROTOPHAGA SULCIROSTRIS.

Crotophaga sulcirostris, Sw.; Boucard, P. Z. S. 1883, p. 43.

Holbox I.; Mugerres I.; Cozumel I.

The common species of *Crotophaga* in Central America being abundant in Yucatan.

134. PIAYA CAYANA.

Piaya cayana (Linn.); Boucard, P. Z. S. 1883, p. 454.

Meco I.; Holbox I.; Mugerres I.

The birds from these islands agree with the common mainland form of *P. cayana*, having dark tail-feathers.

135. COCCYZUS AMERICANUS.

Coccyzus americanus (Linn.); Baird, Brew., & Ridgw. Am. B. ii. p. 477.

Cozumel I.; Ruatan I.

These specimens vary slightly in size and stoutness of bill, and perhaps represent both the eastern *C. americanus* and the western *C. a. occidentalis*, Ridgw.

In its southern migration *C. americanus* reaches the Argentine Republic. Cf. ScL. & Huds. Arg. Orn. ii. p. 37.

136. COCCYZUS MINOR.

Coccyzus minor (Gm.); Baird, Brew., & Ridgw. N. Am. ii. p. 482; Ridgw. Man. N. Am. B. p. 274.

Cozumel I.; Ruatan I.

Several specimens of this *Coccyzus*, which is seldom met with on the mainland of Central America. It has been recorded, however, from Honduras, and we have lately received specimens from the Mexican State of Guerrero from Tampico, and from Buctzotz, in Northern Yucatan, the latter collected by Mr. Gaumer.

137. *COCYZUS ERYTHROPHthalmus*.

Coccyzus erythrophthalmus (Wils.) ; Baird, Brew., & Ridgw. N. Am. B. ii. p. 484 ; Ridgw. Man. N. Am. B. p. 274.

Cozumel I.

A single specimen.

138. *RHAMPHASTOS CARINATUS*.

Rhamphastos carinatus, Sw. ; Gould, Mon. Rhamph. ed. 2, pl. 2 ; Boucard, P. Z. S. 1883, p. 455.

Meco I.

A single specimen.

A well-known bird of the lowlands of the forests of the eastern side of Central America.

139. *CONURUS ASTEC*.

Conurus astec, Souancé ; Finsch, Papag. i. p. 522 ; Salv. Ibis, 1871, p. 93 ; Boucard, P. Z. S. 1883, p. 455.

Holbox I.

A common species in Yucatan.

140. *CHRYBOTIS AURIPALLIATA*.

Chrysotis auripalliata (Less.) ; Finsch, Papag. ii. p. 568 ; Salv. Ibis, 1871, p. 99.

Ruatan I.

Mr. Gaumer's collection contains several specimens of this species, which are the first we have received from any place on the eastern side of the Central-American Cordillera. On the western side of the forests bordering the Pacific *C. auripalliata* is a common species.

141. *CHRYBOTIS AUTUMNALIS*.

Chrysotis autumnalis (Linn.) ; Finsch, Papag. ii. p. 547 ; Salv. Ibis, 1871, p. 98.

Ruatan I.

Not uncommon on the adjoining mainland. Its northern extension reaches to the middle of the Mexican State of Tamaulipas.

142. *CHRYBOTIS XANTHOLORA*.

Chrysotis xantholora, G. R. Gray ; Finsch, Papag. ii. p. 528 ; Salv. Ibis, 1871, p. 97, 1874, p. 327, 1885, p. 192 ; Scl.

P. Z. S. 1875, p. 157, pl. 26; Ridgw. Proc. U.S. Nat. Mus. viii. p. 577.

Cozumel I.

Many specimens, including both sexes and immature birds.

This is apparently the only Parrot found on Cozumel Island.

143. *CICCABA VIRGATA*.

Ciccaba virgata, Cass.

Syrnium virgatum, Sharpe, Cat. B. Brit. Mus. ii. p. 273.

Meco I.

A single specimen, not differing from many mainland examples.

144. *GLAUCIDIUM PHALÆNOIDES*.

Glaucidium phalænoides (Daud.).

Glaucidium ridgwayi?, Sharpe, Cat. B. Brit. Mus. ii. p. 205.

Cozumel I.

Several specimens in very varied plumage (the rufous phase predominating), especially as regards the markings of the tail.

145. *PANDION HALIAETUS*.

Pandion haliaetus (Linn.); Sharpe, Cat. B. Brit. Mus. i. p. 449; Salv. Ibis, 1885, p. 186.

Holbox I.; Cozumel I. (*Devis*); Ruatan I.

Mr. Gaumer's collection contains specimens of the Osprey from Holbox and Ruatan Islands. Mr. Devis also noticed the bird on Cozumel Island. The species is not uncommon on this coast, where it breeds (*cf.* Salv. Ibis, 1864, p. 385).

146. *ASTURINA PLAGIATA*.

Asturina plagiata, Scl.; Sharpe, Cat. B. Brit. Mus. i. p. 204.

Ruatan I.

147. *ASTURINA RUFICAUDA*.

Asturia ruficauda, Scl. & Salv. P. Z. S. 1869, p. 133; Ex. Orn. p. 175, pl. 88; Boucard, P. Z. S. 1883, p. 456.

Rupornis gracilis, Ridgw. Proc. U.S. Nat. Mus. viii. p. 94.

Rupornis magnirostris gracilis, Ridgw. Proc. U.S. Nat. Mus. viii. p. 578.

Meco I.; Holbox I.; Cozumel I.; Ruatan I.; Bonacca I.

We have a good many specimens from Cozumel Island, showing, on an average, rather less barring on the thighs than is usual in birds from the mainland; some, however, are not to be distinguished in this or any other respect.

The Ruatan Island and Bonacca Island birds are darker than usual, with dark chests and tails, but none of them are in quite adult plumage, so that at present I feel only justified in calling attention to the fact.

We now possess seventy specimens of this form of *Asturina* or *Rupornis* from Mexico and Central America, the most northern point reached being Presas de Aldama, near Tampico, in the State of Tamaulipas.

148. URUBITINGA ANTHRACINA.

Urubitinga anthracina (Nitzsch); Sharpe, Cat. B. Brit. Mus. i. p. 215; Salv. Ibis, 1885, p. 193; Ridgw. Proc. U.S. Nat. Mus. viii. p. 581.

Cozumel I.

149. GERANOSPIZIAS NIGRA.

Geranospizias niger (DuBus); Sharpe, Cat. B. Brit. Mus. i. p. 82.

Meco I.

150. HYPOTRIORCHIS COLUMBARIUS.

Falco columbarius, Linn.; Sharpe, Cat. B. Brit. Mus. i. p. 408.

Mugeres I.; Cozumel I.; Ruatan I.

151. HYPOTRIORCHIS RUFIGULARIS.

Hypotriorchis rufigularis (Daud.).

Falco albigularis, Daud.; Sharpe, Cat. B. Brit. Mus. i. p. 401.

Ruatan I.

152. CATHARTES AURA.

Cathartes aura, Linn.

Ænops aura, Sharpe, Cat. B. Brit. Mus. i. p. 25.

Cozumel I.

C. aura, Mr. Gaumer writes, is found in both Ruatan and Bonacca Islands, to the exclusion of *C. atratus*.

PELECANIDÆ.

Specimens of the following species of Pelecanidæ were obtained on Cozumel Island :—

153. *FREGATA AQUILA*.

154. *PELECANUS FUSCUS*.

155. *PHALACROCORAX MEXICANUS*.

156. *PHALACROCORAX FLORIDANUS*.

157. *PLOTUS ANHINGA*.

ARDEIDÆ.

The following Ardeidæ were found on Cozumel Island :—

158. *ARDEA EGRETTA*.

159. *ARDEA CANDIDISSIMA*.

160. *ARDEA RUPA*.

161. *ARDEA PEALI*.

162. *ARDEA LUDOVICIANA*.

163. *ARDEA CÆRULEA*.

164. *BUTORIDES VIRESCENS* (also on Ruatan).

165. *TIGRISOMA CABANISI*.

166. *NYCTICORAX VIOLACEUS* (also on Ruatan).

167. *CANCROMA COCHLEARIA*.

CICONIIDÆ.

168. *TANTALUS LOCULATOR*.

Cozumel I.

PLATALEIDÆ.

169. *EUDOCIMUS ALBUS*.

170. *PLATALEA AJAJA*.

Both on Cozumel I.

ANATIDÆ.

Three species of Ducks were found on Cozumel Island, viz. :—

171. *DENDROCYGNA AUTUMNALIS*.

172. *CAIRINA MOSCHATA*.

173. *QUERQUEDULA DISCORS*.

COLUMBIDÆ.

174. *COLUMBA LEUCOCEPHALA*.

Columba leucocephala, Linn.; Salv. Ibis, 1885, p. 193.

Cozumel I.; Ruatan I.

Apparently a common bird in both the above islands.

175. *ZENAIDURA CAROLINENSIS*.

Zenaidura carolinensis (Linn.); Baird, Brew., & Ridgw. N. Am. B. iii. p. 383.

Cozumel I.

A single specimen.

176. *ZENAIDA AMABILIS*.

Zenaida amabilis, Bp.; Boucard, P. Z. S. 1885, p. 458.

Holbox I.; Mugerres I.

Many specimens, not differing from the typical form of this widely spread West-Indian species. It also occurs on the adjoining mainland.

177. *MELOPELIA LEUCOPTERA*.

Melopelia leucoptera (Linn.); Boucard, P. Z. S. 1883, p. 459.

Mugerres I.; Cozumel I.

A well-known species on the mainland.

178. *CHAMÆPELIA PASSERINA*.

Chamæpelina passerina (Linn.).

Columbigallina passerina, Ridgw. Proc. U.S. Nat. Mus. viii. p. 581.

Holbox I.; Mugerres I.; Cozumel I.

Many specimens.

179. CHAMÆPELIA RUFIPENNIS.

Chamæpelia rufipennis, Bp. ; Boucard, P. Z. S. 1883, p. 459.
Columbigallina rufipennis, Ridgw. Proc. U.S. Nat. Mus.
 viii. p. 581.

Cozumel I.

180. ENGYPTILA JAMAICENSIS.

Engyptila jamaicensis (Linn.) ; Salv. Ibis, 1885, p. 193.

Holbox I. ; Mugerres I. ; Cozumel I.

Many specimens, agreeing with others from Jamaica, the chest being a little darker and not quite so grey.

CRACIDÆ.

181. CRAX GLOBICERA.

Crax globicera, Linn. ; Scl. & Salv. P. Z. S. 1870, p. 513 ;
 Boucard, P. Z. S. 1883, p. 459 ; Ridgw. Proc. U.S. Nat. Mus.
 viii. p. 581.

Cozumel I.

Three females, agreeing with specimens of that sex of *C. globicera*, the common *Crax* of the adjoining mainland.

182. ORTALIS VETULA.

Ortalida vetula, Wagl. ; Scl. & Salv. P. Z. S. 1870, p. 538.

Ortalis vetula, Boucard, P. Z. S. 1883, p. 460.

Ortalis vetula pallidiventris, Ridgw. Man. N. Am. B. p. 209.

Meco I. ; Holbox I.

These birds agree with those of the mainland, and therefore belong to the race recently described by Mr. Ridgway.

RALLIDÆ.

Specimens of the following Rallidæ, all from Cozumel Island, are in the collection, viz. :—

183. ARAMIDES ALBIVENTRIS.

184. PORZANA CAROLINA.

185. PORZANA RUBRA.

186. PORPHYRIO MARTINICA (also from Ruatan I.).

187. GALLINULA GALEATA.

188. FULICA AMERICANA.

189. ARAMUS GIGANTEUS.

LIMICOLÆ.

Mr. Gaumer's collection contains representatives of the following nineteen species of Limicolæ, most of them from Cozumel Island, viz. :—

- 190. *PARRA GYMNOTOMA.*
- 191. *ÆGIALITIS VOCIFERA.*
- 192. *ÆGIALITIS WILSONI.*
- 193. *ÆGIALITIS SEMIPALMATA.*
- 194. *STREPSILAS INTERPRES.*
- 195. *HÆMATOPUS PALLIATUS.*
- 196. *HIMANTOPUS NIGRICOLLIS* (also from Ruatan I.).
- 197. *MACRORHAMPHUS GRISEUS.*
- 198. *TRINGA FUSCICOLLIS.*
- 199. *CALIDRIS ARENARIA.*
- 200. *EREUNETES PETRIFICATUS.*
- 201. *SYMPHEMIA SEMIPALMATA.*
- 202. *TOTANUS FLAVIPES* (also from Holbox I.).
- 203. *TOTANUS SOLITARIUS* (from Ruatan I. only).
- 204. *ACTITURUS LONGICAUDA* (from Ruatan I. only).
- 205. *TRYNGITES RUFESCENS* (from Ruatan I. only).
- 206. *TRINGOIDES MACULARIUS* (also from Ruatan I.).
- 207. *LIMOSA FEDOA.*
- 208. *NUMENIUS LONGIROSTRIS.*

LARIDÆ.

The following Terns and Gull are also from Cozumel :—

- 209. *RHYNCHOPS NIGRA.*
- 210. *STERNA MAXIMA.*
- 211. *STERNA CANTIANA.*
- 212. *LARUS ATRICILLA.*

PODICEPIDIDÆ.

213. *PODICEPS DOMINICUS* (Linn.) is represented by several immature specimens from Cozumel Island.

[To be continued.]

XXXVII.—*Notes on Mexican Birds.*—Part II.*

By OSBERT SALVIN and F. DUCANE GODMAN.

MR. W. B. RICHARDSON has recently been exploring the district between Zacatecas and Bolaños in the State of Jalisco, and the surrounding Sierras, and after leaving there went to Guadalajara, and then, after joining Mr. William Lloyd at Zapotlan, the two explorers made an expedition to the Sierra Nevada de Colima and reached the snow-line within a short distance of the summit, which attains an elevation of about 15,000 feet above the sea-level.

The birds contained in the collection sent from these highlands show great affinity to those of the vicinity of Mexico city; but there are a few that are distinct and some even new. Of the latter we here describe two interesting species and add some others from other places.

HELMINTHOPHILA CRISSALIS, sp. n.

- ♀. Supra oleagineo-brunnea, dorso postico et uropygio clare oleagineis; capite summo crista semicelata castanea ornato; alis et cauda fuscis, oculorum ambitu et loris albis: subtus sordide cinerea; hypochondriis brunne-scentioribus, abdomine medio albicante, crisso læte oleagineo-castaneo; subalaribus albis; rostro et pedibus obscure corylinis, illius mandibulæ basi pallida: long. tota 5·0, alæ 2·5, caudæ 2·1, rostri a rictu 0·55, tarsi 0·75 poll. Angl.

Hab. Sierra Nevada de Colima, Mexico (*W. Lloyd and W. B. Richardson*).

Obs. *H. virginiae* forsan proxima, sed dorso oleagineo-brunneo, plaga pectorali flava nulla, crisso oleagineo, rostro magis robusto &c., facile distinguenda.

Of this pretty and very distinct species Messrs. Lloyd and Richardson only obtained a single female specimen, in the Sierra Nevada of Colima, on April 6th, 1889. The elevation where it was shot was not recorded, but on the 6th April they were camped at about 8000 feet above the sea.

Mr. Ridgway, in his 'Manual,' records both *H. virginiae* and *H. luciae* from Mexico, the former from Guauajuato and

* For Part I. see above. p. 232.

the latter from Sonora. Mr. Richardson has sent us specimens of both species from Bolaños in the State of Jalisco, and Mr. Lloyd one of *H. luciae* from Santana near the western extremity of the lake of Chapala.

MYIADESTES TOWNSENDI.

This species we now find has a wide range in the western Sierra Madre of Mexico. Mr. Lloyd has sent us specimens from Sonora, and Mr. Richardson from the Sierra de Bolaños, in the State of Jalisco. The latter seem absolutely like the typical form of the Rocky Mountains.

CHAMÆOSPIZA NIGRESCENS, sp. n.

C. torquatae similis, sed supra magis oleaginea, et capite antico et gutture nigris, plaga gutturali parva alba et superciliis et vitta mediana frontali nullis facile distingnenda. Long. tota 8·5, alæ 3·6, caudæ 4·0, rostri a rictu 0·6, tarsi 1·1 poll. Angl. ♀ mari similis.

Hab. Patzcuaro, Mexico (*F. D. Godman*).

A close ally of *C. torquata*, but easily distinguished by the above-mentioned characters.

Godman obtained a pair of this species at Patzcuaro in the State of Michoacan, in January 1888.

CHAMÆOSPIZA ALTICOLA, sp. n.

C. torquatae similis, sed supra paulo magis viridescens, capite antico latiore nigro et vitta mediana frontali alba absente distinguenda.

Hab. Sierra Nevada de Colima, Mexico (*W. Lloyd and W. B. Richardson*).

Several specimens of this species of *Chamæospiza* were obtained by Messrs. Lloyd and Richardson in the Sierra Nevada of Colima, at an altitude of about 10,500 feet. The iris is noted as red, the bill black, and the tarsi brown. The loreal and superciliary white stripe is much narrower in this species than it is in *C. torquata*, and in *C. nigrescens* it is wholly absent; *C. torquata* in the only one that has a white frontal stripe.

CHLORONERPES AURICULARIS, sp. n.

Oleagineo-viridis, dorso fere unicolore, uropygio pallide viridi stricte transvittato; capite summo toto cinereo; alis et

cauda dorso concoloribus, hujus rectricibus mediis ad apicem et rhachide tota nigris, rectricibus lateralibus obsolete fusco transfasciatis, illis interne flavis immaculatis; genis et tectricibus auricularibus albidis cinereo tenuiter fasciatis: subtus oleagineus, fasciis pallide viridi-albicantibus hastatiformibus vittatus, gula cinerea albo punctata, stria malari sanguinea. Long. tota 8·0, alæ 4·6, caudæ 2·65, rostri a rictu 1·1, tarsi 0·7 poll. Angl.

Hab. Xautipa, Sierra Madre del Sur in the State of Guerrero (*Mrs. H. H. Smith*).

A very distinct and interesting species, of which Mrs. Smith obtained a single adult male specimen in July 1888, at the above-mentioned locality.

This Woodpecker resembles *C. æruginosus* in the form of the hastate bands of the under surface, but comes closer to *C. yucatanensis* in the barred rump. It differs from both these species in the absence of the red nuchal patch and red supercilium of both those species (this sexual character being restricted to the malar region), and in the banded ear-coverts, which in the adult of the allied species are uniform.

XXXVIII.—Notices of recent Ornithological Publications.

[Continued from p. 273.]

69. Brewster on new Birds from Western North America and Mexico.

[Descriptions of supposed new Birds from Western North America and Mexico. By William Brewster. The Auk, vol. vi. p. 85.]

Mr. Brewster describes as new species and subspecies *Psittacula cyanopyga pallida*, from Sonora; *Empidonax pulverius*, from Chihuahua; *E. griseus*, from Lower California; *Melospiza lincolni striata*, from British Columbia; *Euphonia godmani*, allied to *E. minuta*, from the coast region of Western Mexico; *Progne subis hesperia*, founded on differences in the female sex only, the males being identical, from California; *Compsothlypis pulchra*, from Chihuahua; *Dendroica nigrifrons*, from Chihuahua; *Thryophilus sinaloa cinereus*, from Sonora; and *Polioptila nigriceps restricta*, from Sonora.

70. *Chapman on the Nomenclature of North-American Birds.*

[List of Additions to the North-American Avifauna and of Eliminations and Changes in Nomenclature proposed since the publication of the A. O. U. Check-List. By Frank M. Chapman. *The Auk*, v. p. 393.]

The title of this important memoir indicates its scope and object, which, however, is more fully set out in Mr. Chapman's few prefatory remarks. He says, "since the publication of the 'Check-List' in March 1886, the additions and corrections to our avifauna have been so numerous, that it has been considered advisable to collate them, and the following compilation is presented with a hope that it may be of some service to the many workers in North-American Ornithology."

It may be as well to add that the compiler has made it an object to include all the additions and changes which have been made without reference to their tenability.

71. *Cooke on the Birds of the Mississippi Valley.*

[Report on Bird-Migration in the Mississippi Valley in the years 1884 and 1885. By W. W. Cooke. Edited and revised by Dr. C. Hart Merriam. Washington: 1888.]

The present report, the first-fruit of the cooperative labours of the Division of Economic Ornithology of the Department of Agriculture and of the Committee on Bird-Migration of the American Ornithologists' Union, consists of two parts. The first, which contains remarks on the general subject of migration, the influence of the weather, topography and altitude, the progression of bird-waves, &c., does not always coincide with the views of Dr. Merriam, who expresses his dissent from several theories therein set forth; but the second part, consisting of the systematic report, is a highly valuable collection of facts. The 560 species known to occur in the Mississippi valley are treated serially, the movements of each species during the seasons of 1884 and 1885 being traced with as much exactness as the records furnished by the one hundred and seventy observers in the district permit;

while an excellent map supplements this important contribution.

72. Cory on the Birds of the West Indies.

[The Birds of the West Indies: including all Species known to occur in the Bahama Islands, the Greater Antilles, the Caymans, and the Lesser Antilles, excepting the Islands of Tobago and Trinidad. By Charles B. Cory. 8vo. Boston, U. S. A.: 1889.]

Mr. Cory has reprinted in the present volume the series of papers which have lately appeared in 'The Auk' upon the birds of the West Indies, to the study of which, as we are all aware, he has devoted much time and attention. Mr. Cory has personally made five trips to different parts of the West Indies for the purpose of ornithological investigation, and has also sent a number of collectors at his own expense to the more important islands in order to obtain specimens of their birds.

The additions made to the West-Indian avifauna since the series of papers in 'The Auk' were published are mostly given in an appendix. It would have been more convenient to have found them each in its proper place, but we have, at any rate, the advantage of a complete compendium of Antillean ornithology in one handy volume.

The synonymy of the species, so far as relates to their occurrence in the West Indies, seems to be well worked out, and characters are given, except in the case of well-known North-American birds. There is also a good list of the principal works and papers on West-Indian ornithology prefaced to the volume, and a map of the islands placed at the end. The only thing we miss in this otherwise excellent piece of work is some sort of general essay upon West-Indian ornithology and tables to show the peculiar species in each different island. But the subject is, perhaps, not quite fully ripe for this to be done very effectually; for, notwithstanding Mr. Cory's exertions, there is still much to be done before we can be said to have anything like a complete knowledge of West-Indian ornithology.

73. *Finsch's 'Voyage of the 'Samoa'.'*

[Samoafahrten. Reise in Kaiser Wilhelms-Land und Englisch-neu-Guinea in den Jahren 1884 u. 1885, an bord des Deutschen Dampfers "Samoa." Von Dr. Otto Finsch. 8vo. Leipzig: 1888.]

Everyone interested in New Guinea should read Dr. Finsch's "Samoafahrten," which has nothing to do with the Samoan Islands, but is a narrative of the voyage of discovery of the s.s. 'Samoa' along the coast of the new imperial colony "Kaiser-Wilhelm-Land" and the adjacent islands of the "Bismarck Archipelago." Starting from Sydney, the Imperial Commissioner proceeded first to Mioko, one of the smaller islands of the Duke-of-York group, between New Britain and New Ireland. Thence excursions were made for a period of nine months, during which the whole German coast of New Guinea and the greater part of the shores of New Britain and New Ireland were visited. Some excellent harbours were discovered, one of which, appropriately named "Finsch-Hafen," has now, we are informed, become the proud site of the new capital and the seat of government of the German protectorate, whence regular steam communication is kept up with Cookstown in Queensland.

The passages relating to birds in Dr. Finsch's narrative are not numerous, but are of some interest. An account is given (p. 94 *et seqq.*) of the species to be heard and observed at Friederich-Wilhelm-Hafen, on the north coast of New Guinea, where a species of *Pinarolestes* appears to play the part of a Nightingale. Landing on Fergusson Island, one of the d'Entrecasteaux group, Dr. Finsch was fortunate enough to shoot an example of *Manucodia comrii* (Scl. P.Z.S. 1876, p. 459), one of the finest and rarest of the Paradise Crows. He also observed that, judging from the quantities of its feathers used for ornamentation by the natives in the neighbourhood of Albrecht's River, on the north coast of Emperor William's Land, *Dasyptilus pecqueti* must be quite abundant in that locality. Maps and charts and excellent illustrations in the text serve to render Dr. Finsch's little volume still more acceptable.

74. *Lawrence on Audubon's Petrel in the West Indies.*

[An Account of the Breeding-Habits of *Puffinus auduboni* in the Island of Grenada, West Indies, with a Note on *Zenaida rubripes*. By George N. Lawrence. The Auk, vi. p. 19.]

Mr. Lawrence records that Mr. John G. Wells, of Grenada, paid a visit on April 2nd, 1888, to a small island called Labaye Rock, about a mile off the port of Greenville, and there found *Puffinus auduboni* breeding. This makes an addition to the Grenadan fauna. Col. Feilden has recently recorded the breeding of this Petrel in Barbados (*supra*, p. 60), and it is known to be common in Bermuda.

75. *Lilford's 'Coloured Figures of British Birds.'*

[Coloured Figures of the Birds of the British Islands. Issued by Lord Lilford, F.Z.S. &c., President of the British Ornithologists' Union. Part V., June 1887; Part VI., April 1888; Part VII., September 1888; Part VIII., November 1888; Part IX., December 1888; Part X., March 1889. 8vo. London.]

As will be seen by the list, our President is making good progress with his series of coloured illustrations of British birds. Since our last notice of this beautiful work, six more numbers have appeared, each containing figures of twelve species. Those who require a handy book of reference to the feathered tribes of the British Islands without the trouble of referring to descriptions will do well to subscribe to Lord Lilford's work, which is at the same time of a very ornamental and artistic character. The six numbers now before us contain figures of the following species :—

Fire-crest, Yellow-browed Warbler, Chiffchaff, Willow Warbler, Hedge Sparrow, Red-backed Shrike, Corn Bunting, Ortolan Bunting, Reed Bunting, Little Bunting, Swift, Sparrow Hawk, Marsh Titmouse, Blue Titmouse, Grey Wagtail (2 plates), Blue-headed Wagtail, Yellow Wagtail, Waxwing, Common or House Sparrow, Black-headed Bunting, Yellow Hammer, Cirl Bunting, Rustic Bunting, Blackbird, Alpine Accentor, Common or Brown Linnet, Rose-coloured Pastor, Pied Woodpecker, Hoopoe, Night Heron, Bittern, Black Grouse, Woodcock, Sooty Shearwater, Bulwer's Petrel, Nut-

hatch, Grey-backed Wagtail, Pied or Common Wagtail, Great Grey Shrike, Chaffinch, Bullfinch, Common Kingfisher, Common Heron, Mallard or Wild Duck, Teal, Red-legged Partridge, Great Shearwater, Nightingale, Aquatic Warbler, Grasshopper Warbler, Meadow Pipit, Golden Oriole, Tree Sparrow, Pied Woodpecker, Bee-eater, Common or Grey Partridge, Ptarmigan (3 plates), Golden Eagle, Raven, Carrion Crow, Jackdaw, Jay, Red-billed Chough, Richard's Pipit, Barred or Lesser Spotted Woodpecker, Puffin, White-fronted Goose, Shoveller, Red-crested Pochard.

76. Lucas on the Osteology of the Thrushes.

[Notes on the Osteology of the Thrushes, Miminæ, and Wrens. By Frederic A. Lucas. Proc. U.S. Nat. Mus. 1888, p. 173.]

Mr. Lucas has endeavoured to solve the disputed question whether the Mocking-birds (Miminæ) should be referred to the Turdidæ or the Troglodytidæ by the study of their osteology. His conclusions are that the Miminæ occupy a "somewhat intermediate position," but "should not be included in the very sharply defined family Troglodytidæ."

77. Marage on the Sympathetic System of Birds.

[Anatomie Descriptive du Sympathique chez les Oiseaux. Par R. Marage. Ann. d. Sci. Nat. Zool. sér. 7, vii. (1889) pp. 1-72, 6 pls.]

This paper gives an account of the entire sympathetic system of birds, as studied in the Duck, Fowl, Swan, and other types, including the intestinal and cardiac nerves, and also the vagus and glossopharyngeal. The sympathetic is divided into cephalic, cervical, thoracic, and abdominal regions, and each of these is treated separately, after a short introduction dealing with the literature of each part. The author's investigations have led him to regard the sympathetic of Birds as intermediate in its characters between that of Reptiles and Mammals; it agrees with that of Reptiles in the intimate connection between the thoracic sympathetic ganglia and the corresponding spinal ganglia. The intestinal nerves do not, as in Man, form numerous and large plexuses; on the

contrary, the intestinal nerve follows the course of the intestine; it is frequently furnished with ganglia along its course, from which arise branches supplying the intestine, and there is but a slight formation of plexuses round some of the intestinal blood-vessels. This intestinal nerve is one of three principal nerves arising from the sympathetic chain and supplying the alimentary tract, the others being the great and little splanchnic nerves; it is compared to the inferior mesenteric nerve of *Monitor niloticus*.

78. *Menzbier and Sewertzow on the Ornithology of Turkestan.*

[Dr. N. A. Sewertzow. Ornithologie du Turkestan et des Pays adjacents. (Partie N.O. de la Mongolie, steppes Kirghiz, contrée Aralo-Caspienne, Partie supérieure du Bassin d'Oxus, Pamir.) Par M. le Docteur M. A. Menzbier. Livr. 1. Text and Atlas folio. Moscou: 1888.]

Sewertzow had long planned a great work on the birds of Turkestan, and at the time of his premature death in 1884 was on the point of putting his plans into execution. It has now fallen to M. Menzbier, whom Sewertzow had proposed to associate with himself in the undertaking, to take sole charge of this important work, and we have here the first installation of it.

The first livraison contains the commencement of the account of the Diurnal Accipitres. Amongst them are included several forms (*Aquila nobilis*, *A. daphanea*, *A. amurensis*, and *A. glitchii*) which are not generally recognized in Western Europe, and of which we are glad to have full particulars, whatever may be our opinion on their specific validity.

The atlas contains good coloured lithographs of *Astur cenchroides*, *Hierofalco hendersoni*, *Falco babylonicus*, and *Cyanistes flavipectus*.

79. *Middendorff on the Birds of the Russian Baltic Provinces.*

[II. Ornithologischer Jahresbericht (1886) aus den Russischen Ostsee-Provinzen. Von E. von Middendorff. Ornis, iv. Heft 2 (1888).]

Dr. E. v. Middendorff's report on the ornithological obser-

vations made in the Baltic provinces of Russia during the season of 1886 consists of two portions. The first of these gives a list and short description of the ten stations, the second a systematic account of the observations on each species. The latter list contains notes on only 109 species; of these almost the only Passerine not well known to us is *Carpodacus erythrinus*, which is common in some parts of the Baltic Provinces.

80. *Milne-Edwards and Oustalet on the Birds of the Comoro Islands.*

[Etudes sur les Mammifères et les Oiseaux des Iles Comores. Par MM. Alphonse Milne-Edwards et E. Oustalet. Nouv. Arch. du Mus. d'Hist. Nat. Paris, sér. 2, xi. p. 219.]

The original basis of this excellent *résumé* of the ornithology of the Comoro Islands is the collection made by M. Humblot in the Comoros in 1884 and the two following years, which was described in the 'Annales des Sciences Naturelles' in 1887*. The authors now add to their previous information, and work into their memoir the results obtained by former authorities on the same subject, so as to give a complete account of the ornis of the Comoros and of its relation to other countries. M. Humblot's researches make us acquainted with 65 species belonging to this avifauna, and 14 others had been recorded by previous authorities, but were not met with by M. Humblot. Thus the whole avifauna, according to the present state of our knowledge, embraces 79 species, of which a carefully drawn geographical table is given to show their distribution in the Comoro archipelago and in other countries. About 20 of these species are peculiar to the Comoros, but are mostly slightly altered forms of species known elsewhere, and not, in many cases, referable to genera exclusively Madagascanian. Moreover none of the most characteristic Madagascanian types (such as *Atelornis*, *Brachypteracias*, *Euryceros*, and *Coua*) are found in the Comoros, and the conclusion arrived

* See Ibis, 1888, p. 135.

at is that the Comoro archipelago is not a dependence of Madagascar, but has received its present avifauna from the different lands that surround it.

Six well-executed coloured plates attached to the memoir represent the following endemic species:—*Cinnyris humbloti*, *Zosterops kirki*, *Z. mouroniensis*, *Hypsipetes parvirostris*, *Turdus comorensis*, *Graucalus sulphureus*, *G. cucullatus*, *Terpsiphone comorensis*, *Humblotia flavirostris*, and *Ploceus* (*Foudia*) *consobrinus*.

81. *Sir Henry Peek's List of his Collection of British Birds*

[A Collection of British Birds at Rousdon. By Sir Henry Peek. 4to. London: 1888.]

In his mansion at Rousdon, Devon, Sir Henry Peek has a fine collection of British Birds arranged in wall-cases, which has been formed for him by Messrs. Swaysland, of Brighton. The series is nearly complete, only five species in the list of the B. O. U. (the nomenclature and arrangement of which is followed in the present work) being unrepresented, although in many instances by continental specimens. The main part of the catalogue is accompanied by an outline index-plate of each case, by means of which every specimen can be easily identified. An alphabetical index follows, by which the place of each bird in the series can be readily ascertained.

82. *Ridgway on a new Pigeon.*

[Description of a new Pigeon from Guayaquil, Ecuador. By Robert Ridgway. Proc. U.S. Nat. Mus. 1888, p. 112.]

Columba guayaquilensis, from Guayaquil, is similar to *C. albilinea*, but smaller and much darker.

83. *Ridgway on the male of Acanthidops.*

[Description of the adult Male of *Acanthidops bairdi*. By Robert Ridgway. Proc. U.S. Nat. Mus. 1888, p. 191.]

The U.S. National Museum has now received from Costa Rica an adult male specimen of the curious Passerine bird

described by Mr. Ridgway in 1881 (Proc. U.S. Nat. Mus. iv. p. 336) as *Acanthidops bairdi*, and referred to the Dendrocolaptidæ, but considered by the Editor (see Ibis, 1884, p. 243) to belong to the Fringillidæ. The adult male betrays its affinities more obviously, being closely similar in coloration to *Haplospiza unicolor*. It is possibly the same as *Haplospiza uniformis* of Mexico (Biol. C.-A., Aves, i. p. 366), or at any rate a nearly allied species. But in Mr. Ridgway's opinion *Acanthidops* should be kept generically distinct from *Haplospiza*.

84. *Salvadori on Pallas's Sand Grouse in Italy.*

[Altre notizie intorno al Sirratte in Italia nel 1888, raccolte da Tommaso Salvadori. Boll. Mus. Zool. ed Anat. Comp. iii. no. 52.]

This is a supplement to Count Salvadori's previous paper on the same subject (*cf. supra*, p. 130), and contains rectifications of and additions to the former list of the occurrences of *Syrrhaptes* in Italy in the spring of 1888. Between the 24th April and 9th September of that year about 102 individuals were observed and 43 taken, of which 17 were preserved.

85. *Sclater and Hudson's 'Argentine Ornithology.'*

[Argentine Ornithology. A descriptive Catalogue of the Birds of the Argentine Republic. By P. L. Sclater, M.A., Ph.D., F.R.S., &c. With Notes on their Habits by W. H. Hudson, C.M.Z.S., late of Buenos Ayres. Vol. II. Royal 8vo. London: 1889.]

The issue of the second volume of 'Argentine Ornithology,' which was published in April last, renders this work complete. The second volume contains an account of all the Orders of Birds met with within the Argentine Republic, except the Passeres, which were treated of in the first volume, together with the appendix, index, and introduction. The total number of species recognized as at present known to belong to the Argentine avifauna is 434, to which, no doubt, considerable additions will be made when the northern provinces of the Federation are more completely explored.

The greater portion of the field-notes in this work based by Mr. Hudson on his personal observations, but they are supplemented by liberal extracts from the writings of Dr. Burmeister, Mr. Burrows, and Mr. Gibson, and from the journals of the late Henry Durnford and Ernest Willoughby White, whose untimely deaths those interested in Argentine birds can never cease to lament.

The ten plates, by Keulemans, in the present volume contain illustrations of the following species:—*Chatores burmeisteri*, *Hydropsalis furcifera*, *Coccyzus cinereus*, *Conomolinx*, *Bolborhynchus aymara*, *Buteo swainsoni*, *Ardetta volucris*, *Cygnus nigricollis*, *Rallus maculatus*, and *Notolani darwini*.

86. Sharpe and Wyatt on the Hirundinidæ.

[A Monograph of the Hirundinidæ, or Family of Swallows. By Bowdler Sharpe and Claude W. Wyatt. Parts III.-X. 1886-89. London: Sotheran & Co.]

Since our last notice of this interesting monograph (1886, p. 201), Messrs. Sharpe and Wyatt have issued more parts, containing figures or accounts of the following species:—

Parts III., IV., July 1886: *Psolidoprocne holomela*, *P. pristoptera*, *Hirundo smithii*, *H. nigrorufa*, *H. cucullata*, *H. atrocærulea*, *H. melanocrissa*, *H. griseopyga*, *H. nigra*, *Petrochelidon ariel*, *Cotile concolor*, *C. obsoleta*. Parts V., VI., June 1887: *Petrochelidon ruficollaris*, *P. nigricans*, *P. figula*, *P. timoriensis* (no plate), *P. fulva*, *Tachycineta leucopygia*, *T. albilinea*, *Cotile rufigula*, *C. minor*, *C. anderssoni* (no plate), *Psolidoprocne antinorii*, *Atlicora pileata*, *Progne subis*, *Progne lybea*, *Hirundo neoxena*. Parts VII., VIII., May 1888: *Psolidoprocne petiti*, *P. albiceps*, *P. fuliginosa*, *P. nitens*, *Chelidon lagopus*, *Hirundo sclateri*, *H. smithii* (plate on *H. smithii*), *Atlicora melanoleuca*, *A. fucata*, *Petrochelidon swainsoni*, *C. fluvicola*, *Stelgidopteryx ruficollis*. Parts IX., X., May 1889: *Phedina borbonica*, *P. madagascariensis*, *Cotile concolor*, *Progne furcata*, *P. concolor*, *P. domestica*, *P. dominicensis*.

Chelidon cashmiriensis, *Hirundo rufula*, *H. monteiri*, *H. albigularis*, *Tachycineta meyeri*, and *Atticora tibialis*.

The work may be said to make slow but satisfactory progress.

87. *Shufeldt on the Osteology of Arctic and Sub-Arctic Water-Birds.*

[Contributions to the Comparative Osteology of Arctic and Sub-Arctic Water-Birds. Part II. By R. W. Shufeldt, M.D., C.M.Z.S. Plates VII.-XI. Journ. Anat. and Physiology, xxiii. p. 165.]

We have already noticed the first part of this instructive memoir (*supra*, p. 252). In the second, which is illustrated by five well-executed plates, Dr. Shufeldt treats specially of the genus *Uria*, and points out its differences from *Alca* (*cf.* p. 183).

88. *Shufeldt on the Affinities of Aphriza.*

[On the Affinities of *Aphriza virgata*. By R. W. Shufeldt, M.D., C.M.Z.S. Journ. of Morph. vol. ii. no. 2, 1888.]

After a thorough examination of the various portions of the skeleton of *Aphriza*, Dr. Shufeldt comes to the conclusion that its supposed affinity with *Hæmatopus* is "by no means a close one," the Oyster-catchers being entitled to form a separate family of Limicolæ, and that the sum total of its skeletal characters bring it nearer the "typical large-sized Tringæ with a four-notched sternum," which it in "some way connects with the Plovers." In fine, he proposes to make *Aphriza* the sole representative of a family—"Aphrizidæ."

89. *Stejneger on a Kamtschatkan Woodpecker.*

[Diagnosis of the Kamtschatkan Three-toed Woodpecker (*Picoides albidior*). By Leonhard Stejneger. Proc. U.S. Nat. Mus. 1888, p. 168.]

Dr. Stejneger gives a diagnosis of *Picoides albidior* from actual specimens, his previous characters (Bull. U.S. Nat. Mus. no. 29, p. 321) having been based on some remarks of Prof. Taczanowski.

90. *Studer and Fatio on the Birds of Switzerland.*

[Katalog der Schweizerischen Vögel bearbeitet im Auftrag des Eidgenössischen Departements für Industrie und Landwirthschaft (Abtheilung Forstwesen) von Dr. Th. Studer und Dr. V. Fatio unter Mitwirkung zahlreicher Beobachter in verschiedenen Kantonen. I. Lieferung, Tagraubvögel. Mit Kartenbeilagen. Bern und Genf: 1880.]

The feature of this work is the excellent series of coloured maps, in which the distribution of nearly all the diurnal Raptores known in Switzerland is clearly indicated, the exceptions being those species which are widely diffused, and a few of rare occurrence, such as *Falco gyrfalco* and *F. lanarius* [? *F. feldeggii*]. We are sorry to remark the gradual diminution in the number of the haunts of the Bearded Vulture from 1860 to 1888 as compared with those occupied from 1801 to 1859, and the same may be said of the Golden Eagle; but unfortunately there is the same greed in Switzerland for home-killed specimens of such birds as there is in Great Britain.

91. "*Timehri*," Vol. II. (new series) Pt. 2.

['Timehri,' being the Journal of the Royal Agricultural and Commercial Society of British Guiana. New Series. Vol. II. Part 2. 1888.]

Amongst the contributions to the number of '*Timehri*' lately issued is an account by Mr. Quelch of a fortnight's collecting-trip up the Abary Creek, in British Guiana, which contains many notices of birds. Mr. Quelch was somewhat surprised to find the Hoatzin (*Opisthocomus cristatus*), locally called "Hanna" along the creek, as plentiful as this strange bird is known to be in the Berbice River and Canjé Creek. On the Abary Creek these birds were all moulting in October and in poor condition. Their crops contained only leaves of the "Mucco-mucco" (*Montichardia arborescens*), whereas on the Canjé they were found to feed only on the leaves of the Pimpler (*Drepanocarpus lunatus*).

92. *Walker on the Quadrate Bone.*

On the Form of the Quadrate Bone in Birds. By Mary L. Walker.

University College, Dundee. Studies from the Museum of Zoology in University College, Dundee. Vol. I. Pp. 1-18.]

This is the first time that the shape of the quadrate bone has been tested as regards its value for purposes of classification. The paper contains illustrations of the quadrates of not less than 33 species, which were selected as representatives of the principal orders and families.

The quadrates differ extremely amongst themselves, and Miss Walker has succeeded in showing that the various articulating facets and processes afford very valuable taxonomic characters.

The quadrate of the Flamingo, *e. g.*, shows the closest possible likeness to that of the Pelargomorphæ (especially *Ibis*), and differs altogether from that of the Anseres. The Owls differ greatly in the shape of this bone from the diurnal birds of prey. The Parrots show no affinities with any other groups, except with certain Coccozygomorphæ. The Procellariidæ approach the Colymbidæ; the Laridæ and Alcidæ resemble the Charadriomorphæ.

Whilst these and other instances are decidedly in favour of using the quadrate bone for taxonomic purposes, there are, on the other hand, numerous cases of resemblance between widely different birds, which admonish us to be cautious not to attribute too much value to these characters. We do not yet know how far the configuration of the quadrate bones is determined by the mode of life of the birds. Rap- torial habits, *e. g.*, may necessitate similar structures, which, in this case, as mere analogies, would not indicate true relationships.

However, such considerations apply equally to other organs, and it is sincerely to be hoped that Miss Walker will carry out her intention to continue her most interesting and careful work on a more comprehensive basis.

93. *Zeledon on a new Rail.*

[Description de una especie Nueva de "Gallina de Monte." Par José C. Zeledon. Anales Mus. Nac. Costa Rica, 1888.]

The new Costa-Rican Rail, proposed to be called *Aramides*

plumbeicollis, is allied to *A. cayennensis* and *A. albiventer*. The typical specimens were obtained at Jiménez, on the Atlantic slope of the Republic, about 700 feet above the sea-level.

XXXIX.—*Letters, Extracts, Notices, &c.*

WE have received the following letters addressed to the Editor of ‘The Ibis:’—

Northrepps, March, 1889.

SIR,—In ‘The Ibis’ for 1882, p. 313, I recorded the measurements, in inches and decimals, of eight specimens of *Falco minor*, and subsequently of two more at p. 107 of my ‘List of Diurnal Birds of Prey.’

As all these specimens were from Southern or Tropical Africa, with the exception of one from Anjouan Island, I am desirous of placing on record, for comparison with the above, corresponding measurements of six examples of this Falcon collected in Madagascar by the Rev. James Wills and preserved in the Norwich Museum.

Presumed Females.

	Wing. in.	Tarsus. in.	Middle toe s. n. in.
Immature	12·85	1·90	2·10
Nearly adult	12·85	1·80	2·10

Presumed Males.

Immature in change	11·15	1·70	1·85
Nearly adult	11·25	1·60	1·75
Adult	11·35	1·70	1·70
Adult	11·35	1·70	1·75

The last-named specimen is remarkable for the hind claws on both feet being yellow horn-colour; the outer and middle claws on the right foot are similarly coloured with the exception of a line of black on the outer side, the remaining claws being of the usual black colour. In this example the tarsi and feet are bright yellow, inclining to orange, strikingly different from their usual appearance in skins of this Falcon,

the ordinary colour in adult preserved specimens being blackish brown very slightly tinged with yellow.

Mr. Wills has also sent two Madagascar specimens of *Circus macroscelus*, with a note to the effect that this species frequents the swampy ground around lake Itasy and "takes fish as well as poultry;" the following are the measurements of these two specimens, both of which are adult:—

	Wing. in.	Tarsus. in.	Middle toe <i>s. u.</i> in.
Male	16·90	3·45	1·60
Female	17·70	3·75	1·80

A specimen of *Dissodectes zoniventris* sent by Mr. Wills bears the following ticket, which I think is worth recording: "Eye light brown or drab, soft skin round the eyes and mouth bright yellow. Two chameleons in the crop."

Yours &c.,

J. H. GURNEY.

Northrepps, Norwich,
May, 1889.

SIR,—I am desirous of offering a few remarks suggested by three articles in the second volume of the recently published and very interesting 'Descriptive Catalogue of the Birds of the Argentine Republic.'

At p. 60 of the above volume the type specimen of *Buteo fuliginosus*, Sclater, which is now preserved in the Norwich Museum, is referred to as a melanistic example of *Buteo swainsoni*: this was formerly my opinion also, but a further consideration of its comparatively small size leads me to believe that it is really a melanistic female of *Buteola brachyura*, as mentioned in 'The Ibis,' 1882, p. 340.

At p. 66 a doubt is suggested as to the accuracy of the statement made to D'Orbigny by natives of Patagonia that *Harpyhaliaëtus coronatus* captures and devours the Skunk, and the opinion is expressed that it is hardly probable that a bird of prey would feed on that malodorous animal; such, however, appears to be the fact, as in the Report for 1887 of the Department of Agriculture of the United States Government, amongst many curious details of the food of Raptorial

birds as ascertained by dissection, four instances are given of the remains of the Skunk having been found in the stomachs of birds of prey, the captors being, in one case, *Circus hudsonius*, in another *Buteo lineatus*, and in two others *Bubo virginianus*.

In the description of *Geranoaëtus melanoleucus*, given at p. 64, it is stated that the "abdomen is white, faintly barred across with grey," and that the female is similar to the male, but larger. It is, however, worthy of remark that in very old males the cross bars on the abdomen entirely disappear excepting those of the under tail-coverts. Judging from such specimens as I have seen, I believe that the fact of these abdominal cross bars first becoming faint and then disappearing is peculiar to the male sex, and that in the female these bars continue strongly marked and are permanent; in confirmation of which I may mention that a female specimen in the Norwich Museum, in which the abdominal cross bars are strongly marked, is known to have been more than six years old when it died, it having lived for six years in the possession of Mr. Edward Fountaine, of Easton, Norfolk. Mr. Fountaine also now has another similar living specimen, believed to be a female, which retains the cross bars unaltered, after eleven years' confinement in his aviary.

I am &c.,
J. H. GURNEY.

Keswick, Norwich,
March 9, 1889.

SIR,—It may be worth placing on record that a Green-backed Porphyrio (*Porphyrio smaragdonotus*) which had lived at Northrepps nearly 18 years, and was possibly some years older than that, as it was in adult plumage when received, died on March 4th. Another individual of the same species which came to us along with it was 14 years old, if not more, when it died.

I attribute the longevity of these birds to their having been kept in a large movable cage which enabled them to be shifted

to fresh grass as often as necessary, and which in winter was frequently protected by a covering of matting.

Yours &c.,

J. H. GURNEY, Jun.

SIR,—While fully recognizing the friendly spirit of the criticism of the 'Zoological Record' (*Aves*) in the last number of the 'Ibis,' I think it is due to myself, as well as to the public, to make some reply; inasmuch as, with one exception—kindly attributed to America—the so-called errata are either matters of opinion or are rather referable to the Reviewer than to the Recorder. And, moreover, it is hardly fair, and is at least misleading, to include the former under the head of errors equally with matters of fact.

I shall be delighted to acquiesce in the suggestion of altering the position of the Oligomyodæ, now simply grouped with the other abnormal Oscines; but I cannot agree that the alphabetical order of the families of Passeres can cause any but fancied inconvenience to workers, who certainly know where to look at present, while under other and varying systems they as certainly do not. When a universally-accepted classification is brought forward, I will adopt it at once.

Nor, again, should I consider it wise to follow the "arrangement" of the British Museum Catalogue of Birds. Why follow the "arrangement" of a work which is divided against itself, in which it would appear that one genus (or more) is in danger of omission owing to the discordant views of the writers of the separate volumes, in which the plan is presumably that of Sundevall—artificial enough at first, and since diversified by modifications or alterations of questionable advantage; in which, in short, no one can divine what the final "arrangement" or "disarrangement" may be, or can guarantee the views of the compilers who take in hand the families still to appear?

To notice separately the alleged "errata" and "emen-danda."

P. 5. "*Certhilauda duponti*, n. subsp.," should be "*C. duponti lusitanica*, n. subsp." See p. 42.

The Reviewer himself admits that the name is given in full in the special part; in the general part it is sufficient to show that a new form has been recognized without naming it.

P. 6. "*Haliastur*" *rocifer* should be "*Haliaetus*." This is Mr. Bowker's error, but should have been corrected.

The 'Zoological Record' does not profess to correct errors of the printers of 'Ornis.' Probably the word was *Haliaetus* in the MS., though *Haliastur* is a perfectly legitimate genus, and the author may for some reason wish to refer the species in question to it. The critic's repetition of "this" is an instance of a similar slip of the pen (or press).

P. 15. *Chlorura* belongs to the Ploceidæ, not to the Fringillidæ.

Even if *Chlorura* belongs to the Ploceidæ, the mistake is due to Mr. R. Bowdler Sharpe, who puts it under Fringillidæ (cf. Ibis, 1887, p. 453).

P. 50. *Melilestes* belongs to the Meliphagidæ, not to the Nectariniidæ.

Here the Reviewer should have proceeded with a little of the caution he inculcates. True, the type of *Melilestes* is Meliphagine, but not so the species in question, which is referred to the genus *Arachnothera*, included in the British Museum Catalogue (ix. p. 111, pl. 1. fig. 2) under Nectariniidæ.

P. 54. *Podoces* should, in our opinion, go rather with the Corvidæ than the Sturnidæ.

A matter of opinion, as the affinities of *Podoces* have not been determined by anatomy, and its habits agree at least as well with the Sturnidæ as with the Corvidæ.

P. 54. The Sylviidæ have now become rather a refuge for the destitute. Can *Accentor*, *Cryptolopha*, and *Tharrhaleus*, in any wise be held to belong to it?

If *Accentor* and its relative *Tharrhaleus* (misspelt *Thalarheus* in the criticism) are not to be referred, in common with the best authorities, to the Sylviidæ, we must consent to a family Accentoridæ, the necessity for which has never been shown. *Cryptolopha* appears to be closely allied to *Phylloscopus* and therefore falls more naturally under Sylviidæ

than Muscicapidæ, where Mr. R. Bowdler Sharpe has placed it.

P. 61. *Micropus melanoleucus* from Sumatra is a Pycnotine bird. *Micropus melanoleucus* of Shufeldt is a Swift, &c.

The mistake is fully admitted—the two species confounded having the same generic as well as specific name.

P. 66. The family Plataleidæ cannot be properly maintained as distinct from Ibididæ.

A matter of opinion and one on which criticism is welcome. To be consistent, however, Muscicapidæ should be merged with Sylviidæ, Nectariniidæ with Meliphagidæ, &c.

Yours &c.,

A. H. EVANS.

[We agree with our correspondent that these *vexatæ quæstiones* are mostly matters of opinion. But we claim the right to retain our own. The idea of *Haliastur* in Africa (!) is revolting to those who care for geographical distribution, and should have been noted as incorrect. As regards the families to which *Chlorura* and *Melilestes* belong, we prefer the authority of Salvadori; see his Orn. Pap. ii. p. 443 and iii. p. 343. The arrangement of the B. M. Catalogue is certainly not perfect. But so far as the Passeres go, it will very soon be so far advanced as to enable every known species and its synonyms to be referred to, without difficulty. We trust, therefore, that when this comes to be so, the alphabetical arrangement of families (which we consider objectionable) will be given up.—EDITOR.]

Inverness, June 5th, 1889.

SIR,—As evidencing the rate at which certain species of birds are extending their range, it may be of interest to state that the Stock Dove (*Columba ænas*) bred in Sutherland this year for the first time. In 1885 it was known to have occurred at Lossiemouth, and in 1887 at least two nests were seen or taken by Mr. O. A. J. Lee on the Culbin sands in rabbit-holes.

On the 8th of March, 1888, I heard the Stock Dove in the

woods of Balnagown, in the east of Ross-shire, and the birds bred that year in the woods around Tarbat House, in the same locality. While waiting for Wood Pigeons in a small fir wood at Kintradwell, near Brira, in the east of Sutherland, on the 22nd of September, 1887, I shot a Stock Dove; and on May 19th of the present year I found a nest close to the same spot.

That, having once reached the cultivated lands which are bordered by the Moray Firth, this species should rapidly spread, is not surprising; but by what route the extension took place is so far unknown to us, though the eastern seaboard would seem to be the most probable one, there being no large area of uncultivated land or high mountain-ranges to impede it.

Yours &c.,

T. E. BUCKLEY.

The Monach Islands and Dr. John MacRury.—We have again letters both from Sir John Campbell-Orde and from Mr. John Harvie-Brown, respecting the proper spelling of these names, which have been unfortunately incorrectly given on former occasions (*cf.* *Ibis*, 1888, p. 492, and 1889, pp. 135, 260).

Naturalists in Foreign Parts.—Mr. Meade-Waldo and Canon Tristram again fled from the horrors of an English spring this year, and took refuge in the benign climate of the Canaries. During their explorations of the little-known island of La Palma of this group they were fortunate enough to make the discovery of a new Finch and a new Titmouse. The former has been already described by Canon Tristram as *Fringilla palmæ*, and the latter by Mr. Meade-Waldo as *Parus palmensis* (see *Ann. N. H.* ser. 6, vol. iii. pp. 489, 490). We hope to be able to give full details respecting these interesting species and a general account of the expedition in a future number of 'The Ibis.'

Capt. Page, of the Argentine navy, has planned a new expedition for the survey of the Pilcomayo, an important

western branch of the Rio de la Plata, which he proposes to ascend into Bolivia, in a steam-launch specially built on the Clyde for this service. Capt. Page will take with him as naturalist on this occasion Mr. Graham Kerr, of the University of Edinburgh, who will pay special attention to the Ornithology of this interesting region and, it is to be hoped, add many species to the Argentine Avifauna.

Mr. George S. Ramage, the collector engaged by the joint committee of the Royal Society and British Association for the exploration of the Lesser Antilles, or Caribbees, as it is better to call them, has recently sent home several collections of birds from Dominica and St. Lucia. He will shortly return to England to recruit his health.

Mr. and Mrs. Herbert H. Smith, who have collected so successfully for Mr. Godman in various parts of Mexico (*v. s. p.* 233), have now proceeded, by the direction of that gentleman, to St. Vincent, West Indies, where they will work in connection with the Committee for the Exploration of the Lesser Antilles, and doubtless reap an abundant harvest.

Return of Mr. Scott Wilson.—Mr. SCOTT WILSON has accomplished a successful expedition to the Hawaiian Islands and is now settled at Cambridge, working out the results of his labours. He visited the following islands of the Hawaiian Group:—Hawaii, Maui, Molokai, Lanai, Kahoolawe, and Kauai. Nūhau, an island lying a short distance off Kauai, was the only island unvisited, and from it Mr. Wilson obtained a small series of birds through the kindness of the owner. Mr. Wilson has carefully attended to the distribution of the birds throughout the group; he finds several species to be extinct. We hope to give a full account of his expedition in a future number.

Transfer of Important Collections.—We understand that the Hon. Walter Rothschild, F.Z.S., has purchased Sir Walter Buller's complete series of the specimens which have

been used in the preparation of the new edition of the 'Birds of New Zealand,' as also the collection made by Mr. Whitehead during his recent expedition to Borneo and the Eastern Archipelago. It would have been more advantageous to science that both these collections should have gone to the British Museum of Natural History; but we have at any rate the satisfaction of knowing that they are not to leave the country, as was at one time thought very probable.

The Sitting Cuckoo.—In reference to Herr A. Müller's article on the supposed instance of the Cuckoo sitting on its own eggs, of which we have given a translation above (p. 219), it is right to call attention to Herr Ad. Walter's remarks on this subject in the last number of the 'Journal für Ornithologie' (1889, p. 33), although we do not see that Herr Walter has in any way disproved Herr Müller's positive statements. At the same time the verdict of the German Ornithologists' Society, who discussed the subject at their meeting in September last (*cf. op. cit.* p. 73), seems to have been given against Herr Müller and his observations.

The B. M. Catalogue of Birds.—Mr. Sharpe is making good progress with the 13th volume of the great Catalogue of Birds, which will contain the remaining families of the Oscines and the Pseudoscines. The 15th volume, containing the Tracheophonæ, which has been undertaken by the same author as that of the 14th, already published (see *Ibis*, 1888, p. 488), is about half finished, and is expected to be ready for press by the end of the year. This will conclude the great array of Passeres, which will thus occupy 13 volumes.

For the Picariæ we believe the following arrangements have been made:—Mr. Salvin, as already announced, takes the Trochilidæ and other Macrochires, Mr. Hargitt the Picidæ, Mr. Sharpe the Anisodactylæ and Heterodactylæ, and Capt. Shelley the Zygodactylæ. The Picariæ, if we are correctly informed, will require five volumes (vol. xvi. to xx.).

Bustard-hawking in Morocco.—"As our horses and mules were showing signs of fatigue, we remained at Saffi on the following day, not by any means unprofitably, and certainly not unpleasantly. During the day we experienced the excitement of hawking in Morocco. The Lesser Bustard was our quarry, and the following was the method of procedure. As soon as the whereabouts of a Bustard is discovered, the falconer lets loose his bird and runs forward, directing it by his cries and gestures. At first the Hawk flies at a low level over the field, as if in search of its prey, till, rising higher and higher, it sweeps round in graceful circles. The Bustard, knowing its danger, and that the Hawk can only strike during flight, keeps close, though in deadly terror. Now is our time to rush in. Spreading out in a line, we give our horses the rein and gallop forward helter skelter over rocks and through bushes, ever in danger of a nasty fall over hidden obstacles or from disused *metamores*. We shout and halloo till the welkin rings, to cause the Bustard to rise. Once up, the excitement redoubles. We now scream and yell our loudest, chiefly to direct the Hawk. There is a moment of wild uncertainty, till the wheeling of the Hawk stops, and down like a stone it sinks, and with one fell blow strikes its victim to the ground."—*Travels in the Atlas and Southern Morocco*, by Joseph Thomson (London, 1889).

*List of Ornithological Works in course of Publication
and Date of last Part issued.*

BARTLETT (EDWARD). A Monograph of the Weaver-Birds, Ploceidæ, and Arboreal and Terrestrial Finches, Fringillidæ. Part III. (1889).

BRONN'S (H. G.). Klassen und Ordnungen des Thier-Reichs, Vögel. Von Hans Gadow. Lief. 23, 24 (1889).

GIGLIOLI (E. H.) and MANZELLA (A.). Iconografia dell' Avifauna Italica. Fasc. 44 (1889).

GREENE (W. T.). Parrots in Captivity. Part 30 (1888).

LILFORD (LORD). Coloured Figures of the Birds of the British Islands. Part X. (March, 1889).

- MENZBIER (M. A.). Dr. N. A. Severtzow. Ornithologie du Turkestan. Livr. 1 (1888).
- MEYER (A. B.). Abbildungen von Vogel-Skeletten. Lief. X., XI. (1886).
- OLPHE-GALLIARD (LÉON). Contributions à la Faune Ornithologique de l'Europe Occidentale. Fasc. XXIV., XXV. (1888-89).
- FELZELN (A. von) und MADARÁSZ (J. v.). Monographie der Pipridæ oder Manakin-Vögel. Lief. 1 (1887).
- RUSS (KARL). Die fremdlandischen Stubenvögel. Band IV. Lief. 8 (1888).
- SAUNDERS (HOWARD). An illustrated Manual of British Birds. Part XV. (June, 1889).
- SHARPE (R. B.) and WYATT (C. W.). A Monograph of the Hirundinidæ. Parts IX., X. (March, 1889).
- SUNDMAN (GÖSTA). Finska Fogelägg. Lief. IX. (1888).

Birds from the Riocour Collection.—The British Museum has recently made a valuable acquisition in the shape of a selection from the collection of birds of the late Comte de Riocour, of Vitry la Ville, near Chalons, after whom *Elanoides riocouri* was named by Vieillot (Gal. Ois. i. p. 42). About 150 mounted specimens have been obtained, amongst which are 18 types of Vieillot's descriptions. Besides these there is a single example of a very rare and now extinct Sturnoid bird, *Fregilupus varius*, which was formerly found in Bourbon, and of which Jules Verreaux used to boast that he had shot one of the last remaining specimens.

Anniversary Meeting of the British Ornithologists' Union, 1889.—The Annual General Meeting of the British Ornithologists' Union was held at the rooms of the Zoological Society, 3 Hanover Square, on Wednesday, the 8th May, at 6 P.M., Mr. P. L. SCLATER, M.A., Ph.D., F.R.S., in the Chair.

The Minutes of the last Meeting having been read and confirmed, the Committee presented their Report, in which,

after an explanation of the prosperous state of the finances, and of the successful completion of the last volume of 'The Ibis,' it was announced that it had been deemed advisable to make some alteration in the mode of rendering the accounts. One account, already issued to the Members, showed the cost of the volume for 1888 ; while a second account laid before the Meeting showed the exact balance in hand on the 31st of March last.

Since the last Anniversary one Foreign Member (General Prejevalsky) had died, and two ordinary Members, Sir Victor Brooke and Mr. George Cavendish Taylor, had resigned. The total number of Members was stated to be at present 204, viz. 174 Ordinary, 1 Extraordinary, 9 Honorary, and 20 Foreign Members. The vacancy in the list of Honorary Members remained to be filled up at the next Anniversary.

The lease of the house, No. 6 Tenterden Street, Hanover Square, having expired, the Committee had arranged that the official head-quarters of the B.O.U. should in future be at 18 Princes Street, Cavendish Square, London, W., to which communications could be addressed.

The following Ordinary Members were then balloted for and declared duly elected :—

Richard James Balston, Springfield, Maidstone

Ewen Somerled Cameron, Burgar, Evic, Orkney.

Stephenson Robert Clarke, Croydon Lodge, Croydon.

William Henry Dobie, M.R.C.S., 22 Upper Northgate Street, Chester.

Gerald Barrett Hamilton, Kilmannock House, New Ross, Wexford.

Frederick Ponsonby Johnson, Castlesteads, Brampton, Cumberland.

Arthur Purvis Loyd (late Major 21st Hussars), Belgrave Mansions, Grosvenor Gardens, S.W.

Christopher John Naylor, Brynullywarch, Kerry, Montgomeryshire.

Bertram Savile Ogle, Hill House, Stceple Aston, Oxford.

Humphrey Patricius Senhouse, B.A., The Fitz, Cocker-
mouth, Cumberland.

William Stoate, The Colony, Burnham, Somerset.

Edward Priaulx Tennant, 40 Grosvenor Square, W.;
and The Glen, Innerleithen, N.B.

H. Howard Vyse, Stoke Place, Slough.

James B. Young (Commander R.N.), 2 Elgin Villa,
Rodwell, Weymouth.

The retiring President having been re-elected unanimously, it was agreed, after some discussion, that, in the absence of Mr. Dresser, who, it was understood, did not wish to be re-elected, the election of a Secretary should be deferred until the return of Mr. Dresser from the continent, and left in the hands of the Committee*.

Mr. Howard Saunders was elected on the Committee in the place of Mr. E. C. Taylor, who retired by rotation. The Officers for the year 1889-1890 will therefore be as follows:—

President.

THE RIGHT HON. LORD LILFORD.

Secretary.

F. D. GODMAN, Esq., F.R.S.

Editor.

P. L. SCLATER, Esq.

Committee.

E. BIDWELL, Esq.

O. SALVIN, Esq.

HOWARD SAUNDERS, Esq.

After a vote of thanks to the Chairman the Meeting adjourned. The Annual Dinner, held at the Café Royal, was attended by thirty Members and guests.

* The Committee have met since Mr. Dresser's return and elected Mr. F. D. Godman, F.R.S., Secretary to the B.O.U.

THE IBIS.

SIXTH SERIES.

No. IV. OCTOBER 1889.

XL.—*On the Ornithology of Northern Borneo.* By R. BOWDLER SHARPE, F.L.S., F.Z.S., &c. *With Notes* by JOHN WHITEHEAD.—Part IV.*

(Plates XII., XIII.)

Fam. TIMELIIDÆ.

119. BRACHYPTERYX ERYTHROGYNÆ.

Brachypteryx erythrogyna, Sharpe, Ibis, 1888, p. 389, pl. x.

a. ♀ ad. Kina Balu, Jan. 31, 1888.

b, c. ♂ ♀ ad. Kina Balu, Feb. 25–28, 1888.

d. ♂ ad. Kina Balu, March 26, 1888.

e. ♂ ad. Kina Balu, April 1, 1888.

A young male in Mr. Whitehead's collection is of a duller blue than the adult male, and not only has the abdomen washed with rufous, but has some rufous feathers on the breast, evidently the remains of the first plumage, which must therefore resemble that of the adult female.

[Frequents the true forest from 4000 to 8000 feet, though very scarce at the lower elevation, owing to the Dusan rat-traps, which have almost exterminated all the small mammals and ground-loving birds. This species, like the little

* Continued from p. 283.

Androphilus, was most difficult to shoot from its extreme tameness, as it often came within a few feet of us, and followed us for several yards through the forest, making it extremely hard to obtain specimens without blowing them to bits. Eye dark brown ; feet and bill black.]

120. *ORTHNOCICHLA WHITEHEADI*. (Plate XII.)

Orthnocichla whiteheadi, Sharpe, Ibis, 1888, p. 478.

a, b. ♂ ♀ ad. Kina Balu, March 1888.

c. ♂ ad. Kina Balu, Feb. 14, 1888.

Adult male. General colour above warm chocolate-brown ; wing-coverts like the back ; bastard-wing and primary-coverts blackish, externally edged with chocolate-brown ; quills blackish, the primaries externally lighter brown than the back, the secondaries like the latter ; tail-feathers blackish, narrowly margined with brown ; crown of head blackish brown, as far as the nape ; hind neck like the back ; a broad eyebrow of tawny buff running from the base of the nostrils to the sides of the hind neck ; sides of face tawny buff below the eye ; lores, feathers round eye, and ear-coverts blackish brown ; cheeks and under surface of body pure white ; the fore neck and breast mottled with a few ashy margins to the feathers ; sides of body, flanks, and thighs ashy brown, more decidedly dark ashy on the sides of the breast ; under tail-coverts lighter brown ; under wing-coverts and axillaries blackish, edged with white ; quills below blackish, more ashy along the inner edge. Total length 3·3 inches, culmen 0·65, wing 1·95, tail 0·8, tarsus 0·8.

Adult female. Similar in colour to the male. Total length 3·3 inches, culmen 0·5, wing 1·85, tail 1·85, tarsus 0·75.

This peculiar little bird seems to be strictly congeneric with my *Orthnocichla subulata* from Timor (Notes Leyd. Mus. vi. p. 179), and though so strikingly different in colour, there are several points of characteristic resemblance, viz. the white under surface, the pale yellowish-white legs, and the broad eyebrow.

[Very Wren-like in habits, frequenting the undergrowth close to the ground, through which it creeps more after the

Answer: $\frac{1}{2}$

1. *Staphylococcus aureus* (1000)
 2. *Staphylococcus aureus* (1000)
 3. *Staphylococcus aureus* (1000)
 4. *Staphylococcus aureus* (1000)
 5. *Staphylococcus aureus* (1000)
 6. *Staphylococcus aureus* (1000)
 7. *Staphylococcus aureus* (1000)
 8. *Staphylococcus aureus* (1000)
 9. *Staphylococcus aureus* (1000)
 10. *Staphylococcus aureus* (1000)

1. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Lichtenthaler (1987).

[illegible]

manner of a mouse than of a bird. This little bird is apparently rare, and in my expeditions I only procured three specimens, which were met with in the true forest at elevations of from four to seven thousand feet. Eye black; feet and claws white; bill brown.]

121. *POMATORHINUS BORNEENSIS*, Cab.

Pomatorhinus borneensis, Salvad. Ucc. Born. p. 210; Sharpe, Cat. B. vii. p. 411.

a, b. ♂ ♀ ad. Kina Balu, March 20, 1887.

c. ♂ ad. Kina Balu, April 1, 1887.

[I only met with this species in the old Dusan rice-clearings, at about 1500 feet, where it frequented the low growth near the ground, especially where broad coarse grasses were abundant. In these spots it makes a large nest like a ball, composed of coarse grasses and lined with finer leaves, in which it lays two glossy white eggs, about the middle of January, those found having been taken on the 20th of that month; axis 0·95 inch, diam. 0·7. Eye pale yellow; bill dirty white, except at the base of the upper mandible, where it is black; legs pale slaty blue.]

122. *GARRULAX SCHISTOCHLAMYS*.

Garrulax schistochlamys, Sharpe, Ibis, 1888, p. 479.

a, b. ♂ ♀ ad. Kina Balu, May 14, 1888.

c. ♂ ad. Kina Balu, May 15, 1888.

Adult male. Slaty grey on the head, mantle, and back; lower back, rump, and upper tail-coverts as well as the scapulars and wings chestnut-brown, the primaries externally paler and more fulvous brown; centre tail-feathers deep chestnut-brown, the remainder blackish, externally deep chestnut; lores and base of forehead blackish, extending below the eye; ear-coverts, cheeks, sides of neck, and under surface of body light slaty grey, with blackish shaft-streaks to the feathers of the throat; sides of body and flanks, thighs, vent, and under tail-coverts light chestnut-brown; under wing-coverts dusky, washed with rufous; quills dusky brown below, ashy rufous along the inner web. Total length 9·5 inches, culmen 1·1, wing 4·7, tail 4·15, tarsus 1·6.

Adult female. Similar to the male, but rather lighter in colour. Total length 10 inches, culmen 1·05, wing 5·0, tail 4·15, tarsus 1·65.

[I only met with this species at my last camp, where it frequented the true forest, at an altitude of 4000 feet, feeding amongst the higher branches of large trees. Small bands of five individuals were observed, being probably the old and young birds of the year. Iris lake-red, with a fairly large sub-ocular patch of bare skin of a pale blue colour, almost white; bill black; feet dark brown.]

123. RHINOCICHLA TREACHERI.

Rhinocichla treacheri, Sharpe, Cat. B. vii. p. 453.

Ianthocincla treacheri, Sharpe, P. Z. S. 1879, p. 248, pl. xxiii.

a, b. ♂ ♀ ad. Kina Balu, Jan. 9, 1888.

c, d. ♂ ♀ ad. Kina Balu, Feb. 10, 1887.

e. ♂ ad. Kina Balu, March 15, 1887.

The plate in the original paper is not quite accurate, and gives the silvery markings of the crown as if they formed a patch in the centre of the forehead, whereas they really form a frontal band which extends backwards above the fore part of the eye. The measurements of a pair of this bird are as follows :—

	Total length.	Culmen.	Wing.	Tail.	Tarsus.
	in.	in.	in.	in.	in.
Adult male	9·3	0·9	4·1	4·2	1·4
Adult female	8·7	0·8	4·1	4·2	1·3

[This species is one of the ornithological features of the lower slopes of Kina Balu, where it frequents the low growth which springs up in the old rice-fields. It is found more sparingly at high elevations up to 9000 feet in the true forest, so that perhaps it has a wider range on Kina Balu than any other bird. Its real head-quarters are, however, the low growth from 700 to 1000 feet, from which point it becomes scarcer as one enters the forest or reaches higher elevations. The “Lähoie,” as the Dusans call this bird, creeps and hops about within a few feet of the ground, or may sometimes be seen amongst the highest branches of old forest trees, in parties of four or five, probably an entire family.

It utters a loud whistling note, which may be heard more frequently in the early morning. This is one of the first sounds which attracts the traveller's attention on entering the Kina Balu region.

I saw a nest which was built in a long tangled mass of creepers some 30 feet from the ground; it was composed of dead leaves and roots, and contained one bright greenish-blue egg: this was on the 17th of March. Iris dark lake-red; bill pale orange-yellow; skin round eye bright king's yellow; feet paler yellow.]

124. *ALLOCOTOPS CALVUS*. (Plate XIII.)

Allocotops calvus, Sharpe, Ibis, 1888, p. 389.

a, b. ♂, *c, d.* ♀ ad.; *e.* ♂ jr. Kina Balu, March 1888.

I have already described the sexes of this species (*l. c.*) and the curious young bird.

[Met with on my second expedition in the old forest at 4000 feet. It has a loud booming call-note, and creeps about in the trees much like *Rhinocichla treacheri*, from which it would be difficult to distinguish it but for the white marks on the wings of that species. This bird is by no means common and seems to be local. The young bird, curiously enough, has the crown of the head feathered to the base of the bill, but has a large space of bare skin behind the eye, as well as bare spaces on the neck. The feathers are softer, and the wings of a lighter brown than in the adult.

The adults had the iris dark brown, the bill vermilion, the head quite bald, and the skin of a brownish greenish-yellow, more yellow at the base of the bill; bare skin on neck dull bluish green; feet brownish yellow.

Native name "Rigo Rigo."]

125. *STACHYRIS BORNEENSIS*.

Stachyris borneensis, Sharpe, Ibis, 1887, p. 449.

a, b. ♂ ♀ ad. Kina Balu, Jan. 19, 1888.

c. ♀ ad. Kina Balu, Feb. 18, 1887.

d, e. ♂ ♀ ad. Kina Balu, March 20, 1887.

f. ♀ ad. Kina Balu, March 25, 1887.

The sexes do not differ in colour, and a pair measure as follows:—

	Total length.	Culmen.	Wing.	Tail.	Tarsus.
	in.	in.	in.	in.	in.
Adult male	5·2	0·65	2·2	2·1	0·88
Adult female	5·0	0·6	2·4	1·05	

[Frequents the old rice-plantations and the true forest from 1000 to 5000 feet. It hunts through the low growth in small parties or families of five or six individuals. The nest is a large ball of broad-leaved grasses and other leaves, hidden away amongst the stems of palm-trees or in other dark places. The eggs are three, glossy white; axis 0·8 inch, diam. 0·55. Eye brownish yellow; bill black; feet horny green.]

126. *STACHYRIS MACULATA* (T.).

Stachyris maculata (T.); Sharpe, Cat. B. vii. p. 538.

Timelia maculata, Salvad. t. c. p. 211; Sharpe, Ibis, 1877, p. 10.

a, b. ♂ ♀ ad. Lawas River, April 13, 1886.

c. ♂ ad. Benkoka, Sept. 22, 1885.

d. Ad. Benkoka, Oct. 6, 1885.

[Frequents the true forest near the ground. Iris whitish yellow; feet and lower bill cobalt-blue; upper mandible black; the sides of the neck are bare of feathers, and the skin is of a pale blue.]

127. *STACHYRIS POLIOCEPHALA*, Temm.

Stachyris poliocephala, Temm.; Sharpe, Cat. B. vii. p. 534; id. Ibis, 1887, p. 450.

Timelia poliocephala, Salvad. t. c. p. 212.

a. ♂ ad. Kina Balu, March 7, 1887.

[Only one specimen met with on Kina Balu, at an altitude of 4000 feet.]

128. *TURDINUS ATRIGULARIS*.

Turdinus atrigularis (Bp.); Salvad. t. c. p. 217; Sharpe, Cat. B. vii. p. 549.

a. ♂ ad. Benkoka, Nov. 2, 1885.

[Only one specimen met with, which I shot one evening at a small stream in the forest. Iris dark brown; the bare skin behind the eye of a pale blue; feet dull pinkish brown.]

129. *Turdinus canicapillus*.

Turdinus canicapillus, Sharpe, Ibis, 1887, p. 450.

a. ♂ ad. Kina Balu, March 10, 1888.

b. ♂ ad. Kina Balu, March 25, 1887.

c. ♀ ad. Kina Balu, April 12, 1888.

d. ♂ ad. Kina Balu, April 20, 1888.

The sexes are alike in colour, and a pair measure as follows:—

	Total length.	Culmen.	Wing.	Tail.	Tarsus.
	in.	in.	in.	in.	in.
Adult male	5·0	0·65	2·5	2·15	1·0
Adult female	5·3	0·65	2·45	2·0	0·95

[Fairly common on the lower slopes of Kina Balu from 3000 to 4000 feet, frequenting the undergrowth.]

130. *Turdinus magnirostris*.

Turdinus magnirostris (Moore); Sharpe, Cat. B. vii. p. 547.

a. ♂ ad. Benkoka, Oct. 28, 1885.

The single specimen is rather smaller and greyer than Malaccan examples. This seems to be the first recorded occurrence of the species in Borneo.

[Legs dark cobalt; bill black, lower mandible whitish cobalt.]

131. *Erythrocichla bicolor*.

Erythrocichla bicolor (Less.); Sharpe, Cat. B. vii. p. 551.

Malacopteron ferruginosum, Bl.; Salvad. t. c. p. 228; Brüggem. Abhandl. Bremen, v. p. 460; Sharpe, Ibis, 1879, p. 258.

a, b. ♂ ad. Benkoka, Oct. 1885.

[Frequents old forest, but apparently not very common. Those shot were hunting in the lower branches of the undergrowth near the forest paths. Iris light hazel; upper mandible dark brown, lower one yellow at the base; feet flesh-colour.]

132. *Drymocataphus capistratoides*.

Drymocataphus capistratoides (T.); Salvad. t. c. p. 218; Sharpe, Ibis, 1879, p. 258; id. P.Z.S. 1881, p. 797; id. Cat. B. vii. p. 555.

a. ♀ ad. Benkoka, Sept. 5, 1888.

b. ♂ ad. Kina Balu, March 20, 1887.

[Found in the thick jungle on the ground. This species walks on the ground, never hopping or climbing about amongst the low growth. The Kina Balu specimen was killed at an elevation of 1000 feet.]

133. *TRICHOSTOMA ROSTRATUM.*

Trichostoma rostratum, Blyth; Sharpe, Cat. B. vii. p. 562.

Brachypteryx umbratilis (T.); Salvad. t. c. p. 258; Sharpe, P. Z. S. 1881, p. 797.

a. ♂ ad. Benkoka, Oct. 23, 1885.

134. *MALACOPTERUM CINEREUM.*

Malacopteron cinereum, Eyton; Sharpe, Cat. B. vii. p. 565.

Malacopteron magnum, Eyton; Salvad. t. c. p. 226.

a. ♂ ad. Benkoka, Sept. 9, 1885.

[Bill black, lower mandible flesh-colour; feet flesh-colour.]

135. *MALACOPTERUM AFFINE.*

Malacopteron affine (Bl.); Sharpe, Cat. B. vii. p. 569.

Setaria affinis, Salvad. t. c. p. 231; Sharpe, Ibis, 1877, p. 12; id. P. Z. S. 1879, p. 340; id. Ibis, 1879, p. 258.

a. ♀ ad. Labuan, Dec. 20, 1885.

136. *KENOPIA STRIATA.*

Kenopia striata (Bl.); Salvad. t. c. p. 223, tav. v. fig. 2 (1874); Sharpe, P. Z. S. 1881, p. 797; id. Cat. B. vii. p. 573.

a. ♀ ad. Benkoka, Oct. 28, 1885.

[I only met with this one specimen, which came to drink at a small stream that I was watching. Iris black; feet white; upper mandible black, lower one white.]

137. *MIXORNIS BORNEENSIS.*

Mixornis borneensis, Bp.; Salvad. t. c. p. 215; Sharpe, Ibis, 1877, p. 11; id. P. Z. S. 1879, p. 340; id. Ibis, 1879, p. 257; id. Cat. B. vii. p. 580; Blasius, Verh. z.-b. Ges. Wien, xxxiii. p. 62 (1883).

Timelia borneensis, Brüggem. Abhandl. Bremen, v. p. 460.

a, b. ♂ ad. Benkoka, Oct. 19, 1885.

c. ♂ ad. Benkoka, Sept. 5, 1885.

[Frequents the lower growth of tangled masses of jungle, especially in the neighbourhood of wet places. The note is "Buckier, buckier, buckier," which is uttered sharply. Iris whitish yellow; bill and feet dark brown.]

138. *MIXORNIS MONTANA*.

Mixornis montana, Sharpe, Ibis, 1887, p. 449.

a, b. ♂ ♀ ad. Kina Balu, Jan. 19, 1888.

c. ♀ ad. Kina Balu, Feb. 13, 1888.

d. ♀ ad. Kina Balu, April 5, 1887.

I have described an adult female, but there is no difference between the sexes.

[Fairly common at an altitude of 1000 feet on Kina Balu, frequenting the old clearings, where it creeps about amongst the coarse grasses and dense masses of undergrowth within a few feet of the ground. In the early mornings this little bird may be heard uttering a loud bell-like note, which it ends up with "Chou chou buckier buckier," uttered as sharply as with its relation *M. borneensis*.

The nest is a small loosely constructed ball of broad grass-stems entered by a hole in the side; it is generally placed within a foot of the ground amongst dead ferns or coarse grasses. The eggs are three in number, white spotted all over with pale pink spots, and may be found from the middle of January to March. Axis 0.75 inch, diam. 0.55. Iris light yellow.]

139. *ANDROPHILUS ACCENTOR*.

Androphilus accentor, Sharpe, Ibis, 1888, p. 390, pl. ix. fig. 2.

a. ♂ ad. Kina Balu, Jan. 31, 1888.

b. ♂ ad. Kina Balu, Feb. 3, 1888.

c. ♀ ad. Kina Balu, Feb. 25, 1888.

d. ♂ ad. Kina Balu, Feb. 26, 1888.

[This species invariably sought us out, and would appear almost under one's toes, following for several yards, along the forest paths. My men often tried to knock them down

with their head-cloths. If this bird ever frequented the lower altitudes of Kina Balu it has long since been exterminated by the Dusan rat-traps, which no doubt account for its scarcity at the altitudes which it now frequents. Iris dark brown; upper mandible black, the lower one greyish brown at base; legs dark brown.]

I only met with this species at from 7000 to 9000 feet, where it frequented the dark and damp patches of forest, amongst the wet moss-covered fallen trunks of large trees, where this peculiar bird was found singly. The first individual of this species I took for a mouse, as it crept about within a few yards of my feet; it was quite ten minutes before I could get a shot, the bird following me for several yards.]

140. *CORYTHOCICHLA CRASSA*.

Corythocichla crassa, Sharpe, Ibis, 1888, p. 391.

a, b. ♂; *c, d.* ♀ ad. Kina Balu, Feb. 1888.

e. ♂ ad. Kina Balu, March 2, 1888.

[Met with at 7000 feet on Kina Balu, where it frequents the low bamboo growth, hunting in small families of four or five individuals, often at some height above the ground. Iris dark brown; legs also dark brown; bill black, the lower mandible greyish at the base.]

141. *TURDINULUS EXSUL*.

Turdinulus exsul, Sharpe, Ibis, 1888, p. 479.

a, b. ♂ ♀ ad. Kina Balu, May 10, 1888.

The female is like the male in colour. Total length 4·3 inches, culmen 0·6, wing 2·2, tail 1·1, tarsus 0·85.

[I only obtained two specimens of this species at about 5000 feet on Kina Balu, where it is apparently rare.]

142. *ANUROPSIS MALACCENSIS*.

Anuropsis malaccensis (Hartl.); Sharpe, Cat. B. vii. p. 588.

Brachypteryx malaccensis, Salvad. t. c. p. 222; Sharpe, Ibis, 1876, p. 40, 1877, p. 12; id. Ibis, 1879, p. 258; id. P.Z.S. 1881, p. 797.

a. ♂ ad. Sandakan, N. Borneo, April 21, 1885

Fam. LANIIDÆ.

143. LANIUS LUCIONENSIS.

Lanius lucionensis, L.; Sharpe, Ibis, 1876, p. 43; id. P. Z. S. 1879, p. 341; id. Ibis, 1879, p. 259.

Lanius schwaneri, Bp.; Salvad. t. c. p. 159.

a. ♂ ad. Benkoka, Oct. 19, 1885.

b. ♂ ad. Labuan, Nov. 30, 1885.

c. ♂ imm. Labuan, Dec. 5, 1885.

d. ♀ imm. Kina Balu, March 25, 1887.

[Met with on Kina Balu up to 1000 feet. Native name "Burong Cassip."]

144. HYLOTERPE HYPOXANTHA.

Hyloterpe hypoxantha, Sharpe, Ibis, 1887, p. 451.

a. ♂ juv. Kina Balu, Feb. 25, 1887.

b, c. ♂ ♀ ad. Kina Balu, Feb. 20, 1887.

d, e. ♀ ad. Kina Balu, March 13, 1888.

The sexes are alike in colour, and a pair measure :—

	Total length.	Culmen.	Wing.	Tail.	Tarsus.
	in.	in.	in.	in.	in.
Adult male	5·8	0·6	3·3	2·3	0·75
Adult female.....	6·0	0·65	3·4	2·35	0·75

The young bird is like the adults, but rather duller in colour, and has several rufous-edged feathers on the back, wings, and breast.

[Met with on Kina Balu from 3000 to 8000 feet, but more plentiful at the higher elevation, where it frequents the lower branches of high trees. Iris and bill black; feet bluish grey; the lower mandible of the young bird is yellowish at the base.]

145. HYLOTERPE GRISOLA.

Hyloterpe grisola (Bl.); Salvad. t. c. p. 157; Sharpe, P. Z. S. 1879, p. 341.

a, b. ♂; c, d. ♀ ad. Pulo Tega, April 25, 1886.

[Feet cobalt-blue.]

146. PTERUTHIUS ÆRALATUS.

Pteruthius æralatus, Tick.; Sharpe, Ibis, 1887, p. 451; id. P. Z. S. 1888, p. 276.

a, b. ♂ ♀ ad. Kina Balu, March 9, 1887.

c. ♀ ad. Kina Balu, Jan. 8, 1888.

d, e. ♀ ad. Kina Balu, Feb. 1888.

f. ♀ ad. Kina Balu, April 15, 1888.

Mr. Whitehead's male specimens are exactly the same as Sumatran *P. cameranoi*, and they exhibit the slight differences from *P. aeralatus* to which I drew attention last year (P. Z. S. 1888, p. 276), viz. the blue-black gloss on the head, and more decided pink on the flanks. These differences are, however, not constant, and I do not see how the Tenasserim and Sumatran specimens are to be kept separate. The females are not different either, for the fulvous colour on the throat extends to the chin in the Bornean birds; but one of the latter has a pale throat just as in a Tenasserim skin, and the fulvescent throat seems to me to be a sign of immaturity.

[Met with from 4000 to 9000 feet; fairly common at the latter elevation, where it haunts the low weather-beaten trees in small parties. They sit on the lower boughs, hopping sideways when moving, every now and then leaving their perches to pick an insect off the leaves. They have a very hawk-like look, sitting with the head sunk low on the shoulders, and are quarrelsome with other birds, always driving them off. Iris pale bottle-green; legs light pink. Upper half of upper bill black, rest and lower mandible pale blue.]

FAM. CERTHIDÆ.

147. DENDROPHILA CORALLIPES.

Dendrophila corallipes, Sharpe, Ibis, 1888, p. 479.

Dendrophila frontalis (Horsf.); Salvad. t. c. p. 161; Sharpe, Ibis, 1879, p. 259; id. P. Z. S. 1881, p. 795.

a, b. ♂ ♀ ad. Lawas River, April 2, 1886.

c. ♂ ad. Padas River, June 14, 1885.

d. ♀ ad. Kina Balu, Feb. 26, 1887.

e. ♀ ad. Kina Balu, April 8, 1888.

It is rather curious that no one has noticed the difference in the colour of the feet in the Bornean bird. Mr. Whitehead was the first to point it out to me.

[More plentiful on the sea-coast, where it frequents the Casuarina trees and mangrove-swamps on the edges of rivers. Also found on Kina Balu up to 3000 feet. In habits this bird is like a true Nuthatch. It was only on shooting a *Dendrophila* in Palawan that I discovered the difference of the two species. The Bornean bird has turned out to be the undescribed form, the Palawan and Java species being the true *D. frontalis* with black legs. The Bornean bird is also more vivid in colouring.

Native name "Tempakeris." (What this means I do not know.) Iris straw-yellow; bill and legs vermilion, the former tipped with black. The bill in the true *D. frontalis* is not "bright cobalt-blue" as is stated in vol. viii. of the Museum 'Catalogue' (p. 359), but of an orange-vermilion.]

Fam. NECTARINIIDÆ.

148. *ÆTHOPYGA TEMMINCKI*.

Æthopyga temmincki (S. Müll.); Sharpe, Ibis, 1878, p. 419; Shelley, Monogr. Nect. p. 47, pl. 16. fig. 1.

a, b. ♂ ♀ ad. Kina Balu, Feb. 20, 1887.

c. ♀ ad. Kina Balu, April 14, 1888.

d. ♂ ad. Kina Balu, May 8, 1888.

This species was first recorded from Sarawak by myself in 'The Ibis' (*l. c.*) The female remains, so I add a description:—

Adult female. General colour above olive-yellow, with a golden shade on the back; lesser and median coverts like the back; greater coverts, bastard-wing, and primary-coverts dusky brown, externally olive, with a tinge of orange-red; quills dusky brown, edged with yellow, which is more or less tinged with orange-red; the innermost secondaries olive-brown; tail-feathers dusky brown, edged with orange-red, olive towards the ends of the outer webs; crown of head ashy grey, the occiput and nape washed with olive-yellow; lores ashy; eyelids whitish; sides of face, ear-coverts, and cheeks ashy grey, the latter washed with olive; chin, throat, and under surface of body pale greenish, the throat rather more ashy; on the sides of body a silky white patch; long

feathers on the flanks ashy white; lower abdomen, thighs, vent, and under tail-coverts pale greenish yellow; under wing-coverts and axillaries white; quills below dusky, white along the inner edge. Total length 3·3 inches, culmen 0·55, wing 1·75, tail 1·05, tarsus 0·5.

[Found on Kina Balu at from 2000 to 6000 feet, but most plentiful about 4000 feet, where it frequents the high forest trees and feeds among the many parasitical plants which cover their boughs with many beautiful flowers. Iris and bill black; feet dark brown.]

149. *ÆTHOPYGA SIPARAJA*.

Æthopyga siparaja (Raffl.); Shelley, Monogr. Nect. p. 57, pl. 19; Sharpe, P. Z. S. 1879, p. 342; id. Ibis, 1879, p. 260.

Æthopyga eupogon, Cab.; Salvad. t. c. p. 173; Sharpe, Ibis, 1876, p. 42, 1877, p. 17; id. P. Z. S. 1881, p. 796.

a. ♂ ad. Labuan, May 1886.

b. ♂ ad. Labuan, June 30, 1886.

c. ♂ ad. Kina Balu, March 17, 1887.

d. ♀ ad. Kina Balu, April 1887.

e. ♀ ad. Kina Balu, May 5, 1888.

[Fairly common in the lowland forests, and found on Kina Balu up to 2000 feet, above which elevation its place is immediately taken by *Æ. temmincki*, neither species seeming to overlap the range of the other.

In the end of April I found a nest of this species which was placed under an overhanging bank amongst loose roots of trees. The nest was a long pocket made outwardly of dead grass and lined with fine roots. The eggs were two in number, of a pale salmon-pink, blotched with darker tints at the larger end, then spotted and marked with dark lake-red. Axis 0·55 inch, diam. 0·4.

Native name "Suit merah" (red). "Suit" is the native name of all species of *Nectarinia*, called so from their note, which is "suit suit."]

150. *CHALCOSTETHA INSIGNIS*.

Chalcostetha insignis (Jard.); Salvad. t. c. p. 177; Shelley,

Monogr. Nect. p. 87, pl. 30; Sharpe, Ibis, 1877, p. 17, 1879, p. 260; id. P. Z. S. 1881, p. 796.

a. ♂ ad. Labuan, May 1886.

b. ♀ ad. Labuan, July 1886.

[This species is met with more frequently in the mangrove-swamps than elsewhere, and I do not think that it is ever found very far from swamps. I saw a nest in Palawan which was a suspended pocket made of grass-stems, and contained two young birds.

Native name "Suit Tungeon" (*i. e.* the "Swamp Suit.")]

151. CINNYRIS HASSELTII.

Cinnyris hasselti (T.); Shelley, Monogr. Nect. p. 127, pl. 42; Sharpe, P. Z. S. 1879, p. 342; id. Ibis, 1879, p. 260; id. P. Z. S. 1881, p. 796.

Nectarophila hasselti, Salvad. t. c. p. 177; Sharpe, Ibis, 1877, p. 18.

a. ♂ ad. Labuan, March 21, 1886.

152. CINNYRIS PECTORALIS.

Cinnyris pectoralis (Horsf.); Shelley, Monogr. Nect. p. 165, pl. 53; Sharpe, P. Z. S. 1879, p. 341; id. Ibis, 1879, p. 259.

Cyrtostomus pectoralis, Salvad, t. c. p. 170.

a, b. ♂ ♀. Labuan, December 1885.

[Common in Labuan, and in open places generally. It prefers to frequent fruit-gardens to most other localities. I have seen many nests of this bird, which are generally suspended about 3 or 4 feet from the ground on an outside branch of some bush or small tree. The nest is often a beautiful structure, composed of dead leaves; over the small entrance-hole is a roof which projects so as to keep out the wet. At the bottom is generally a long streamer which assists in making the nest look much like a lump of leaf-refuse that has got caught up in the branches. Inside the nest is lined with "Llang"-grass down, from the seeds of that plant.

The eggs are always two in number, of a pale greenish blue under surface, sometimes thickly clouded with light

brown, and slightly speckled with small black spots, or of the same underlying colour, only slightly marked with greyish blotches and small black spots. Axis 0·55 inch, diam. 0·45.]

153. *ARACHNOTHERA JULIÆ*.

Arachnothera juliæ, Sharpe, Ibis, 1887, p. 452, pl. xiv.

a. ♂ ad. Kina Balu, Feb. 19, 1887.

b. ♀ ad. Kina Balu, March 8, 1887.

c, d. ♂ ♀ ad. Kina Balu, April 2, 1888.

e. ♂ juv. Kina Balu, April 26, 1888.

The sexes are alike in colour and measure as follows :—

	Total length.	Culmen.	Wing.	Tail.	Tarsus.
	in.	in.	in.	in.	in.
Adult male	6·9	1·95	3·4	1·75	0·7
Adult female.....	6·8	1·8	3·1	1·65	0·65

[This Spider-Hunter, one of the finest of my discoveries, was scarce on Kina Balu. During my first expedition I only obtained one specimen, and altogether, by carefully watching some high trees in a large forest for a month, only collected six specimens. These birds seldom left the orchids and other plants which flower on the tops of the highest trees. In the month of March a young bird was obtained which was like the adults, but less distinctly marked on the breast and back, the white stripe in the centre of the feathers in the young bird having a decided yellowish tinge, while the yellow of the rump and vent is not so bright as in the old birds. The food of this species is not entirely insects, as one specimen had several small berries in the throat. Bill, feet, and iris black.]

154. *ANTHOTHREPTES MALACCENSIS*.

Anthreptes malaccensis (Scop.) ; Salvad. t. c. p. 178 ; Shelley, Monogr. Nect. p. 315, pl. 102 ; Sharpe, Ibis, 1876, p. 42, 1877, p. 18 ; id. P. Z. S. 1879, p. 342 ; id. P. Z. S. 1881, p. 796.

a. ♂ ad. Labuan, June 30, 1885.

b. ♂ juv. Labuan, July 15, 1885.

[One of the commonest Sun-birds, especially in the neigh-

bourhood of cocoa-nut plantations, where it finds abundant food amongst the flowers of the young nuts.

The nest is a pocket, suspended from a branch in some tangled bush, and is much more open at the mouth in proportion than that of *Cinnyris pectoralis*; it is made of grass-stems, and lined with the down off the 'llang' grass, and bound together by spiders' web. Eggs two, dull pink, thickly scribbled over with grey, spotted and sprinkled over with black, after the manner of some Buntings'. Axis 0·7 inch, diam. 0·55. Iris hazel; feet greenish brown; bill black.]

155. *ANTHOTHREPTES PHÆNICOTIS* (T.).

Anthothreptes phænicotis, Shelley, Monogr. Nect. p. 325, pl. 105; Sharpe, P. Z. S. 1879, p. 343; id. Ibis, 1879, p. 260; id. P. Z. S. 1881, p. 796.

Chalcoparia cingalensis (Gm.); Salvad. t. c. p. 180.

a. ♂ ad. Kina Balu, April 1887.

[Not very plentiful in Northern Borneo, met with at 1000 feet on Kina Balu. Iris reddish brown; feet yellowish green; bill black.]

156. *ARACHNOTHERA MODESTA*.

Arachnothera modesta (Eyton), Shelley, Monogr. Nect. p. 353, pl. 113. fig. 1.

a. ♂ ad. Kina Balu, Jan. 16, 1888.

b, c. ♂ ♀ ad. Kina Balu, Feb. 20, 1888.

[Fairly common in old forest. Met with on Kina Balu up to 4000 feet. This species makes a beautiful cup-like nest, which it suspends from the underside of some large leaf. The nest is fastened to the leaf by spiders' web, which is sewn through. It is composed of a bright brown silky substance, which is found on the young fronds of ferns; a good deal of white down from seeds is also used. The outside is covered with small flower- and plant-stems, stuck together with spiders' web.

The eggs are two in number, of a deep olive-brown, mottled and clouded all over with grey specks, sometimes with a well-marked zone of black spots and blotches. I took several

nests about the middle of March on the spurs of Kina Balu. Axis 0·95 inch, diam 0·7.

Native name "Sussut busar." "Sussut" in Kadayan means "lost," busar "big," that is in comparison with *A. longirostris*.

As both species have a peculiar habit of flying low and fast through the jungle, uttering their peculiar call-note at short intervals, the natives may have imagined that the bird is "lost." This species is one of the bird-omens of some tribes. Iris and upper mandible black, lower one brown; feet dull flesh-colour.]

157. ARACHNOTHERA LONGIROSTRIS.

Arachnothera longirostris (Lath.); Salvad. t. c. p. 186; Shelley, Monogr. Nect. p. 357, pl. 114; Sharpe, Ibis, 1887, p. 18; id. Ibis, 1879, p. 261; id. P. Z. S. 1881, p. 796.

a. ♂ ad. Kina Balu, Feb. 15, 1887.

b. ♂ ad. Kina Balu, March 4, 1887.

[Fairly common in old forest, more so near the coast, perhaps, than the last species. It reaches an altitude of nearly 3000 feet on Kina Balu.

The nest is different from that of *A. modesta*, the entire structure being sewn on to the underside of some large leaf, which forms one side of a pocket. The building-materials are dead leaves. The nest I have is unfortunately unfinished.

Native name "Sussut."]

158. ARACHNOTHERA CHRYSOGENYS.

Arachnothera chrysogenys, Temm.; Salvad. t. c. p. 181; Shelley, Monogr. Nect. p. 365, pl. 117; Sharpe, Ibis, 1877, p. 18; id. Ibis, 1879, p. 261.

a, b. ♂ ♀ ad. Lawas River, March 26, 1886.

[I only met with this species on the Lawas River, so perhaps it is not so common in North as in Southern Borneo. Iris black; bill black, yellowish at base; feet dull pink.]

Fam. MELIPHAGIDÆ.

159. ZOSTEROPS AURIVENTER.

Zosterops auriventer, Hume; Sharpe, Cat. B. ix. p. 163.

a, b. ♂ ♀ ad. Kina Balu, March 25, 1887.

c. ♂ ad. Kina Balu, April 1, 1887.

The specimens from Kina Balu cannot be separated from Tenasserim examples, but, as Mr. Whitehead has pointed out, the bird which I had named *Z. auriventer* from Java is really a distinct race, characterized by its very pale ashy sides, almost obsolete abdominal streaks of yellow, and dusky lores. It seems to be deserving of a name, but it is approached by the Malaccan specimens, which are paler than those from Tenasserim.

[Fairly common on the lower spurs of Kina Balu, frequenting the more open spaces, flying in twittering flocks amongst the tops of small trees.]

160. ZOSTEROPS CLARA.

Zosterops clara, Sharpe, Ibis, 1888, p. 479.

a. ♂ ad. Kina Balu, March 9, 1888.

b, c. ♂ ad. Kina Balu, April 5, 1888.

d. ♀ ad. Kina Balu, Feb. 3, 1888.

Adult male. General colour above clear greenish yellow, the rump and upper tail-coverts scarcely lighter than the back; wing-coverts like the back; bastard-wing black; primary-coverts and quills blackish, externally greenish yellow, a little lighter on the primaries, the innermost secondaries like the back; tail-feathers blackish, narrowly margined with greenish yellow; crown of head like the back; the forehead and lores as well as the feathers at the base of the bill blackish, extending on the forehead across the centre of each eye; feathers round eye silky white, except in front, where they are blackish; ear-coverts and cheeks greenish yellow; throat clearer yellow; sides of neck like the back; fore neck, chest, sides of body, and flanks pure bluish grey; centre of breast, abdomen, thighs, and under tail-coverts clear yellow; under wing-coverts and axillaries silky white; quills

below dusky, white along the inner edge. Total length 4 inches, culmen 0·55, wing 2·05, tail 1·4, tarsus 0·6.

Adult female. Similar to the male. Total length 4 inches, culmen 0·5, wing 2·05, tail 1·35, tarsus 0·6.

[Met with only in one locality on Kina Balu, at about 5000 feet. I found a nest of this species, which was built of fine roots on the underside of a moss-covered bough, in the dark damp forests on the slopes of the mountain. The old birds were feeding their young on grubs.]

Fam. DICÆIDÆ.

161. DICÆUM MONTICOLA.

Dicæum monticolum, Sharpe, Ibis, 1887, p. 452.

a. ♂ ad. Kina Balu, Feb. 15, 1887.

b, c. ♂ ♀ ad. Kina Balu, April 1, 1888.

The affinity of this species with *Dicæum sulaense* instead of with *D. celebicum* is most interesting. The steel-blue colour of the back separates the Kina Balu bird from both, but it has olive-yellow flanks like *D. sulaense*. Of the latter species the female is at present undescribed, but between the hens of *D. celebicum* and *D. monticola* there is a great difference, the female of the Celebean bird being dull purplish, while the female of *D. monticola* is olive-yellowish on the back, clearer olive-yellow on the rump and upper tail-coverts; the head dusky steel-green washed with olive; wing-coverts blackish, with a steel-green gloss, and edged with olive-yellow; quills blackish, with narrow olive edges; tail-feathers blue-black; sides of face dull ashy shaded with olive, as also the cheeks, with a grey shade over the sides of the fore neck and chest; throat white, gradually turning to pale ochreous yellow on the breast and abdomen and under tail-coverts; sides of body olive; axillaries, under wing-coverts, and quill-lining white, with a yellow tinge. Total length 3·2 inches, culmen 0·4, wing 1·85, tail 0·95, tarsus 0·5.

The young bird resembles the adult female, but has the base of the bill yellowish white and the colours duller; the head olive like the back; the throat pale ashy grey, this colour extending over the breast.

[I first met with this beautiful little bird at an altitude of 4000 feet, where it frequented the parasitic plants and flowers on high trees. In some trees were large clusters of parasites, which were covered with small fruits ; these trees were regularly visited by this *Dicæum*. Iris, feet, and bill black.]

162. *DICÆUM NIGRIMENTUM*.

Dicæum nigrimentum, Salvad. t. c. p. 165 ; Sharpe, P. Z. S. 1879, p. 343 ; id. Cat. B. x. p. 17.

a. ♀ ad. Kina Balu, March 1887.

b. ♂ ad. Kina Balu, April 1887.

c. ♂ ad. Labuan, June 15, 1886.

d. ♂ ad. Labuan, Aug. 20, 1885.

[Common, especially in the neighbourhood of gardens and other open spaces. I have a beautiful nest of this bird, which is a small rounded pocket suspended from the underside of a small twig, well sheltered from above by the broad leaves of the tree. The nest is composed of white (seed) down, and woven on the outside with small red leaves and fine grass-stems. The eggs were three in number and pure white.]

163. *DICÆUM CHRYSORRHÆUM*.

Dicæum chrysorrhæum (T.) ; Salvad. t. c. p. 168 ; Sharpe, Ibis, 1877, p. 17 ; id. Cat. B. x. p. 44.

a. ♂ ad. Lawas River, March 28, 1886.

b. ♂ ad. Kina Balu, March 15, 1887.

[Apparently scarce, only two specimens being met with during my expeditions. Iris red ; feet and bill black.]

164. *DICÆUM TRIGONOSTIGMA*.

Dicæum trigonostigma (Scop.) ; Salvad. t. c. p. 166 ; Sharpe, Ibis, 1876, p. 42 ; id. Ibis, 1877, p. 17 ; id. Cat. B. x. p. 38 ; P. Z. S. 1879, p. 343 ; id. Ibis, 1879, p. 261 ; id. P. Z. S. 1881, p. 796.

a. ♂ ad. Kina Balu, April 15, 1888.

b, c. ♂ ; d. ♀ ad. Kina Balu, April 1887.

[Met with on Kina Balu at about 1000 feet. Iris dark brown ; bill black ; feet greyish black.]

165. PRIONOCHILUS XANTHOPYGIUS.

Prionochilus xanthopygius, Salvad. t. c. p. 162; Sharpe, Ibis, 1877, p. 17, 1879, p. 261; Cat. B. x. p. 66.

a, b. ♀ ad. Lawas River, March 26, 1886.

166. PRIONOCHILUS THORACICUS.

Prionochilus thoracicus (T.); Salvad. t. c. p. 163; Sharpe, Ibis, 1877, p. 17, 1879, p. 261; id. P. Z. S. 1881, p. 795; Cat. B. x. p. 67.

a, b. ♂ ad. Sandakan, April 24, 1885.

[Only met with on one occasion, near Sandakan. Iris, feet, and bill black.]

Fam. HIRUNDINIDÆ.

167. HIRUNDO JAVANICA.

Hirundo javanica, Sparrm.; Salvad. t. c. p. 126; Sharpe, Ibis, 1876, p. 43; id. P. Z. S. 1879, p. 345; Cat. B. x. p. 142.

a. ♂ ad.; *b.* ♂ juv. Pulo Gaya, May 5, 1885.

[Common throughout Northern Borneo, often nesting under the verandahs of houses, but I once saw a nest in an old tree-stump, which was standing up in the middle of a river.

The nest is made of mud and grass, and contains two eggs in May and other months. The eggs are white, spotted and marked like those of *H. rustica*. Axis 0·7, diam. 0·5.

Native name for all Swallows and Swifts "Liang-liang."
Iris, feet, and bill black.]

Fam. MOTACILLIDÆ.

168. MOTACILLA MELANOPE.

Motacilla melanope, Pall.; Sharpe, Cat. B. x. p. 497; id. P. Z. S. 1879, p. 343.

Calobates bistrigata (Raffl.); Salvad. t. c. p. 259.

a. ♂ ad. Kina Balu, Jan. 10, 1888.

b. ♀ ad. Kina Balu, Feb. 28, 1887.

c. ♂ ad. Kina Balu, April 2, 1887.

[This species prefers the beds of rocky torrents, where it is generally met with singly. On Kina Balu it frequented

streams up to 3000 feet. Native name "Bras bras." "Bras" is "rice" in Malay, and as Wagtails visit Borneo in swarms during the rice-planting season and frequent the fields when the grain first springs up, the native name is derived from this circumstance.]

169. MOTACILLA FLAVA.

Motacilla flava, L.; Sharpe, Cat. B. x. p. 516.

Motacilla viridis, Brüggem. t. c. p. 461.

a. ♂ juv. Labuan, Nov. 30, 1885.

b. Juv. Labuan, Dec. 20, 1885.

c, d. Juv. Tampassuk, Feb. 16, 1886.

[I saw this species in thousands on the Tampassuk plains, where they were busily engaged in following up the grass-fires, feeding on singed grasshoppers.]

170. ANTHUS RICHARDI.

Anthus richardi, Vieill.; Sharpe, Cat. B. x. p. 564.

a. ad. Labuan, Nov. 8, 1887.

Recorded from Borneo for the first time.

[I saw three or four Pipits of this species on Labuan Plain and noticed that their note was different from those of the Pipits I had met with before. Doubtless it is a regular winter migrant to that island.]

171. ANTHUS GUSTAVI.

Anthus gustavi, Swinh.; Sharpe, Cat. B. x. p. 613; id. P.Z.S. 1879, p. 344; id. Ibis, 1879, p. 262; id. P.Z.S. 1881, p. 798.

a. ♂ ad. Labuan, Jan. 15, 1885.

b. ♂ ad. Abai, Feb. 27, 1886.

c. ♂ ad. Pulo Tega, April 22, 1886.

[This species prefers the forests to the open places, and frequents the ground.]

Fam. STURNIDÆ.

172. STURNIA VIOLACEA (Bodd.).

Sturnia dominicana (nec Bodd.); Salvad. t. c. p. 269.

Sturnia daurica (nec Pall.); Sharpe, Ibis, 1879, p. 262.

a, b. ♂ ♀ ad. Sandakan, April 24, 1885.

This is the species which I erroneously entered as Bornean in my paper on Mr. Treacher's collection (Ibis, 1879, p. 262). Professor Westwood kindly sent me one of the specimens from Oxford, and I discovered my mistake at once. Both individuals were immature, and in this plumage they much resemble the young of *S. sturnina*.

[I met with this species in an open patch which was covered with a small berry-bearing plant on which they were feeding. I again saw a large flock in Labuan on the same shrubs, in the winter months. Iris, upper mandible, and feet black; lower mandible blue-grey.]

173. CALORNIS CHALYBEA.

Calornis chalybea (Horsf.); Salvad. t. c. p. 271; Sharpe, Ibis, 1876, p. 45, 1877, p. 21; id. P. Z. S. 1879, p. 345; id. Ibis, 1879, p. 262; id. P. Z. S. 1881, p. 799; Brüggem. t. c. p. 461.

a, b. ♂ ad. et juv. Labuan, July 1885.

[Very common in Labuan, where they frequent the fruit-gardens and other open spots. They retire to rest in large flocks in the cocoa-nut trees, where they take some time before settling down, making a good deal of noise.

This Starling nests in holes in dead trees in colonies, and I have seen them frequenting a dovecot in numbers for nesting-purposes.

Native name "Salangkir."

Iris bright vermilion, feet and bill black.]

174. GRACULA JAVANENSIS.

Gracula javanensis (Osbeck); Salvad. t. c. p. 274; Sharpe, P. Z. S. 1879, p. 346; id. Ibis, 1879, p. 262; Brüggem. t. c. p. 461.

a. ♂ ad. Labuan, Nov. 30, 1885.

[Common, frequenting the more open districts, where it nests in holes in the old dead trees. This bird is, in Borneo, as elsewhere, a great favourite with the natives, who teach it to talk. Native name "Teung."]

Fam. ARTAMIDÆ.

175. ARTAMUS LEUCORHYNCHUS.

Artamus leucorhynchus (L.) ; Salvad. t. c. p. 140 ; Sharpe, Ibis, 1876, p. 45 ; id. P. Z. S. 1879, p. 345.

a. ♂ ; *b, c.* ♀ ad. Pulo Gaya, April 30, 1885.

[Iris dark hazel ; bill light blue ; feet dull brown.

This is a common species, frequenting open spaces, more especially where dead trees remain standing after forest fires.

The Tree Swallow is a most disagreeable bird, and seems to think that if it has chosen a tree no other bird has a right to perch on it : if a Pigeon or Hawk tries to rest for a few moments it is soon mobbed and made to move on.

The note is equally as disagreeable as the bird's nature appears to be, being a sharp chattering, which is continually kept up. Their flight is graceful, but not prolonged, the birds often resting on a dead branch, on which they sit in bunches of four or five, with their bodies almost touching each other.

The nest is composed of light grey stalks and small roots, which assimilate well with the bleached trees on which they are built ; it is lined with finer roots and grasses.

Eggs three, laid in June, creamy white in colour, slightly spotted with grey and light brown, especially at the larger end, where a zone is formed with blotches of the same colour. Axis 1·05 inch, diam. 0·7.]

Fam. PLOCEIDÆ.

176. PADDA ORYZIVORA (L.) ; Salvad. t. c. p. 263 ; Sharpe, P. Z. S. 1879, p. 344.

a. Ad. Labuan.

[This species is, I believe, an importation of the Hon. Hugh Low, the late Governor of Labuan. It is now too plentiful to please the natives, doing great damage to their rice-fields. I have never seen it on the main land of Borneo, though Labuan is only a few miles distant, but in that island it is very common. The Sarawak Dyaks, I believe, are fond of these birds, and purchase them in Labuan, so no doubt before many years are past it will be common throughout Borneo.

In Java, in some of the towns where there were many thick-foliaged trees, this species used to collect at nights in flocks of thousands, making a great noise with their wings as they occasionally took flight before finally resting.

Native Bornean name "Pipit Java."]

177. *MUNIA FUSCANS*.

Munia fuscans (Cass.); Salvad. t. c. p. 268; Sharpe, P. Z. S. 1879, p. 344; Brüggem. t. c. p. 461.

a. ♂ ad. Labuan, June 17, 1886.

[This little *Munia* was at one time more common in Labuan than it now is, having been driven away by its larger ally, which, again, in no distant future will be driven before the ever-increasing hordes of *Padda oryzivora*.

It is now by no means common in Labuan, where it frequents the rice-fields and gardens, nesting in the fruit-trees. The nest is a large ball of various grasses with a small hole at the side, around which project the seed-ends of many grasses, almost hiding the entrance.

The eggs are five, pure white, and may be found in January and other months: axis 0·6 inch, diam. 0·45. I met with this species on Kina Balu up to 1500 feet.

Native name "Pipit itham."]

178. *MUNIA BRUNNEICEPS*.

Munia brunneiceps, Walden, Trans. Z. S. viii. p. 73, pl. ix. fig. 1 (1872).

Munia atricapilla (V.); Salvad. t. c. p. 265; Sharpe, Ibis, 1876, p. 50; id. P. Z. S. 1879, p. 344; id. P. Z. S. 1881, p. 798.

a. ♀ ad. Labuan, June 30, 1885.

b. Ad. Labuan, Dec. 1886.

Having recently worked out these Chestnut-and-black Weaver Finches, I find that the Bornean bird is the same as the Celebean one: it has probably been introduced from that island.

[One of the commonest species, found in open districts, where it is ever ready to pounce on the ripening rice of the natives. In some places these little pests (unless the fields

are carefully guarded) get more rice than the native himself. They nest in numbers in gardens. The nest is similar to that of *M. fuscans*, the eggs being also white. Axis 0·65 inch, diam. 0·45. I have often turned out seven or eight birds from one of their old nests in the evening, and am at a loss to know how they could possibly pack together into such a small place.

Native name "Pipit," which is evidently given them from their note "Pipē-pipē," which they frequently utter.]

179. *CHLORURA BORNEENSIS*.

Chlorura borneensis, Sharpe, Ann. & Mag. Nat. Hist. (6), iii. p. 424 (1889).

C. hyperythra (nec Reichenb.) ; Sharpe, Ibis, 1887, p. 453.

a, b. ♂ ♀ ad. Kina Balu, April 5, 1887.

c. ♂ ad. Kina Balu, March 2, 1888.

d, e. ♂ ad. Kina Balu, Feb. 1888.

[The young bird is similar in colouring to the adults, but wants the black forehead and blue crown, which is green like the back. The cheek, throat, fore neck, and breast are not so vivid in colour as in the adults.

During my first expedition to Kina Balu I only collected two of this beautiful little bird, which were feeding in a rice-field. This locality was, however, not its real habitat; for on climbing up to nearly 9000 feet I came upon its true head-quarters, which is the bamboo-jungle at that elevation.

The birds were difficult to see and shoot, owing to the thickness of the jungle and their green colouring, and they are often too close when seen.

The flight is very quick, and when on the wing the bird continually utters its call-note, which is a hissing sound like "Tzit-tzit," but when settled it is silent. Iris and bill black; feet flesh-colour.]

180. *ERYTHRURA PRASINA*.

Erythrura prasina (Sparrm.) ; Salvad. t. c. p. 268 ; Sharpe, Ibis, 1876, p. 507, 1879, p. 262.

a, b. ♂ ♀ ad. Kina Balu, Jan. 15, 1888.

c, d. ♂ ad. Kina Balu, Jan. 8, 1888.

[Not met with until my last expedition to Kina Balu (when I arrived a month earlier than on my previous visit). These birds were then in large flocks in the Dusan rice-fields, and were especially active late and early in the day.

Though their plumage is composed of the brightest of colours, these birds are difficult to see when settled in the jungle, into which they fly on being alarmed. Iris and bill black ; feet flesh-colour.

After a month there was not a bird to be met with.

Dusan name "Tuhan." Kadayan name "Pipit trepas."

"Trepas" is the name given to the small Parrot (*Loriculus galgulus*), which this bird resembles somewhat in colour.

Some of the natives have a peculiar belief that this species makes a glutinous nest in caves like a *Collocatia*, which of course is extremely improbable.]

Fam. EURYLÆMIDÆ.

181. CALYPTOMENA WHITEHEADI.

Calyptomena whiteheadi, Sharpe, P. Z. S. 1887, p. 558 ; id. Ibis, 1887, p. 454 ; id. Ibis, 1888, p. 231, pl. v. ; Sci. Cat. B. xiv. p. 457.

a. ♂ ad. Kina Balu, Feb. 25, 1887.

b, c. ♂ ♀ ad. Kina Balu, March 6, 1887.

d. ♀ ad. Kina Balu, May 10, 1888.

e. ♂ juv. Kina Balu, May 13, 1888.

I have given a full description of the plumages of this lovely bird in last year's 'Ibis' (1888, p. 231), with a figure of the male.

[I met with this beautiful species on my first expedition at an elevation of 3000 feet. On my second expedition, after reaching altitudes above 5000 feet, it was not observed, so the exact range is apparently from 3000 to 5000 feet. This *Calyptomena* frequents the dark damp ravines of Kina Balu, where the forest is tropical, but wherever the ground is poor and the trees become alpine in character it is absent.

The bird frequents the lower boughs of big trees and feeds chiefly on jungle fruits. I discovered a nest with eggs and also one nest containing young birds. The following notes are from my journal:—

“17th March, 1888.

“The great thing to-day has been the discovery of the nest of my *Calypomena*. Whilst resting in a dark and dense part of the forest I sent on one of my natives to try for some Pigeons (*Carpophaga badia*) which were booming in the high trees; in a short time a bird settled near me, making a peculiar ‘Kurr-r’ like note. On my moving it flew away, but shortly returned to another tree, which I carefully approached. I soon espied the *Calypomena* holding on to a large tuft of moss. The bird remained thus for some seconds watching me without moving, when it dawned upon me that the lump of dangling moss was a great prize—the nest of my finest novelty. A shot from my small gun brought down the hen bird, and when my native returned I sent him up the tree; but the nest, alas! contained two dull yellow featherless youngsters, both killed by the same shot that destroyed their mother. The nest was hanging from the end of a slender bough about 50 feet from the ground. The outside was composed of fresh green moss bound over the bough and worked into the sides, ending up with a long streamer, which assists in assimilating the appearance of the nest to the long dripping streamers of moss and lichens which hang from every bough in these ever rainy regions. The inside of the nest is very solid, lined with dry bamboo-leaves above and below, forming a well-sheltered pocket. Having thus obtained a clue to the nesting-habits of this species, I visited all likely places for their nests, and shortly after found a nest containing two eggs. This nest was similar to the one first found, and was placed at the end of a long slender bough over an open space. This position is chosen, no doubt, so as to be well out of the reach of various monkeys.”

Dusan name “Ralo.”

Eggs two, glossy creamy white. Axis 1.45 inch, diam. 1.0.

A young bird just out of the nest was of a much duller colour on the breast than the adult, the feathers being mingled with greyish down. The black patch on the throat is scarcely perceptible. The back, wings, and tail are as bright as in the adult female.]

182. *CALYPTOMENA VIRIDIS*.

Calyptomena viridis, Raffl.; Salvad. t. c. p. 106; Sharpe, Ibis, 1877, p. 22, 1879, p. 263; id. P. Z. S. 1881, p. 798; Scl. Cat. B. xiv. p. 456.

a. ♂ ad. Sandakan, April 22, 1885.

b. ♂ ad. Lawas River, April 3, 1886.

c. ♂ ad. Kina Balu, March 16, 1887.

[Fairly common in old forests, where it frequents the lower branches of high trees in shady places. This species reaches an altitude of 4000 feet on Kina Balu, but is scarce at that elevation.

One native name "Bintarrang."

Iris black; bill and feet dull yellowish brown.]

183. *PSARISOMUS PSITTACINUS*.

Psarisomus dalhousiæ (pt.), Scl. Cat. B. xiv. p. 459.

Psarisomus dalhousiæ (nec James.); Sharpe, Ibis, 1887, p. 453.

a, b. ♂ ♀ ad. Kina Balu, March 6, 1887.

c. ♀ ad. Kina Balu, March 14, 1888.

d. Juv. Kina Balu, April 20, 1888.

The Green Broadbill of Sumatra and Borneo is fairly distinct as a race from the Himalayan *P. dalhousiæ* on account of its more pronounced white collar, and may be separated as *P. psittacinus* (S. Müll.). The sexual difference in the colour of the nape-spot recorded by Mr. Whitehead does not seem to have been noticed by any previous writer.

[Speaking of one of my Kina Balu specimens, sent to Leiden, Mr. Büttikoffer says: "Our typical specimens of *P. psittacinus* have the collar less broad than in your Bornean bird. A young one has none; in others it is very distinct, but only in one, also from Sumatra (which I believe to be very old), is it nearly as broad as in your Bornean specimen. We have also two specimens from the Himalayas, and both have the collar yellow instead of white." So perhaps Müller's name of *P. psittacinus* should hold only for the Sumatran and Bornean species, and that of *P. dalhousiæ* for those of the Himalayas.

The sexes differ, the nape of the neck of the female having a patch of yellow feathers between the black and blue patches. This colour is absent in the collar of the male, which has only a blue patch.

This gaily-plumaged bird is fairly common at an altitude of from 3000 to 4000 feet on Kina Balu, where it frequents the tops of high trees in the tropical patches of forest, feeding apparently on fruits. It has a peculiar shrill note, and is generally found in pairs. It nests apparently about the middle of March, as a female shot on that date had been sitting. The white spot on the underside of the wing is very apparent when it makes short flights from tree to tree.

The colouring of the soft parts is rather complicated. Iris grey, with a narrow ring of lake-red round the pupil; upper mandible emerald-green, darker at the base, fading into pale blue as it nears the tip, which is almost white; lower mandible orange, fading into yellow and then blue, with the base emerald-green; feet horny green.]

184. EURYLÆMUS JAVANICUS.

Eurylæmus javanicus, Horsf.; Salvad. t. c. p. 107; Sharpe, Ibis, 1876, p. 48, 1877, p. 22, 1879, p. 263; Scl. Cat. B. xiv. p. 463.

a. ♂ juv. Benkoka, Sept. 22, 1885.

b. ♂ ad. Kina Balu, Feb. 1888.

[Fairly common everywhere, reaching an altitude of 1000 feet on Kina Balu.

Iris greyish blue; bill turquoise-blue green, cobalt at base; feet dirty pink.]

185. EURYLÆMUS OCHROMELAS.

Eurylæmus ochromelas, Raffl.; Salvad. t. c. p. 108; Sharpe, Ibis, 1876, p. 48, 1877, p. 21, 1879, p. 263; id. P. Z. S. 1881, p. 798; Scl. Cat. B. xiv. p. 465.

a, b. ♂ ♀ ad. Benkoka, Sept. 25, 1885.

c. ♂ ad. Kina Balu, March 17, 1887.

d. ♂ ad. Kina Balu, Jan. 14, 1888.

[Distribution the same as in the last species. Met with on Kina Balu at about 1000 feet. Native name "Tapau." Iris bright yellow, bill turquoise-blue.]

186. CYMBIRHYNCHUS MACRORHYNCHUS.

Cymbirhynchus macrorhynchus (Gm.) ; Salvad. t. c. p. 109 ; Sharpe, Ibis, 1876, p. 48, 1877, p. 22, 1879, p. 264 ; id. P. Z. S. 1881, p. 798 ; Scl. Cat. B. xiv. p. 468.

a. ♂ ad. Benkoka, Sept. 5, 1885.

[A common forest species. Iris bottle-green ; upper mandible turquoise-blue ; under one blue, running into light blue and king's yellow at base ; feet light blue.]

187. CORYDON SUMATRANUS.

Corydon sumatranus (Raffl.) ; Salvad. t. c. p. 111 ; Sharpe, Ibis, 1876, p. 48, 1877, p. 21, 1879, p. 265 ; Scl. Cat. B. xiv. p. 466.

a. Juv. Benkoka, July 6, 1885.

b. ♀ ad. Benkoka, April 16, 1886.

c. ♂ ad. Kina Balu, March 15, 1887.

d. ♀ ad. Kina Balu, May 5, 1888.

[Rather a scarce species in Borneo, frequenting old forest. Met with on Kina Balu up to 2000 feet. Iris dull white ; skin round eyes pink ; bill dull pinkish brown ; feet brown.]

Fam. PITTIDÆ.

[I have seen all the following species of Pittas alive in their forests, except *P. schwaneri*, and I have also shot *P. sordida* and *P. erythrogastra* in Palawan and *P. cyanura* in Java, so perhaps my observations of the group may be of some value.

Pittas, as a rule, keep to the ground or on the lower branches of trees near it ; but I have shot these birds high up in trees where they have been whistling. It is not at all an uncommon thing to hear a Pitta cry out in the middle of the night, which they do either in the forests or when taking flights from one forest to another ; these movements take place most frequently on moonlight nights.

There is little doubt that Pittas are migratory, as they may be met with at certain times in numbers on the small islands some distance from the coast, which at other times do not contain a single bird (see my notes on *P. cyanoptera*). At

some seasons districts on the coast are frequented by numbers of a certain species, where in other seasons it would be impossible to procure a specimen.

Pitta bertæ, of which species there are but few specimens known, is, in all probability, a migrant from Formosa or China to Borneo.

P. cyanura of Java frequents the coffee-plantations, the females being apparently separated from the males in certain seasons, as I collected a number of males in one forest and did not see a female, while in another forest I collected nothing but females.

The note of these birds is generally a two- or three-syllabled whistle: that of *P. erythrogastra*, "Wow-wä" whistled; of others "Quop-quop;" while *P. ussheri* has a prolonged whistle.

Pittas hop over the ground, moving along at a great pace. The young have a plumage distinct from the adults, those of *P. muelleri* and *P. sordida* having less white on the primaries, pale pink abdomens, yellowish breasts, white throats, and dull green backs, the head being brownish. The young of the *P. erythrogastra* group are of a uniform brown, darker on the back.

The flesh of these birds is white and sweet.]

188. PITTA ARCUATA.

Pitta arcuata, Gould; Salvad. t. c. p. 241; Sharpe, Ibis, 1879, p. 263; Scl. Cat. B. xiv. p. 431.

a, b. ♂ ♀ ad. Kina Balu, May 1888.

c, d. ♂ ♀ ad. Kina Balu, March 10, 1887.

There is no difference in the colouring of the sexes; but the female has scarcely such a finely developed necklace.

[I met with this beautiful Pitta on Kina Balu at from 2000 to 4000 feet in true forest, where it frequented the thick bamboo-jungle. Iris black; bill dark brown, greyish at base of lower mandible; legs slate-grey.]

189. PITTA BAUDI.

Pitta baudi, M. & S.; Salvad. t. c. p. 243; Sharpe, P. Z. S. 1881, p. 798; Scl. Cat. B. xiv. p. 444.

a. ♂ juv. Benkoka, Sept. 15, 1885.

b. ♂ ad. Benkoka, Oct. 8, 1885.

[Apparently rare. I only saw three birds of this species during my stay in Borneo. Iris and bill black; legs slaty blue.]

190. *PITTA SCHWANERI*.

Pitta schwaneri, T.; Salvad. t. c. p. 243; Sharpe, Ibis, 1869, p. 263.

Eucichla schwaneri, Scl. Cat. B. xiv. p. 446.

a, b. ♂ ♀ ad. Kina Balu, May 20, 1888.

[Only two specimens met with, which were procured on Kina Balu, at 5000 feet, by one of my men after I had left to pack up for my return journey to the coast.]

191. *PITTA USSHERI*.

Pitta ussheri, Sharpe, P. Z. S. 1877, p. 94; id. Ibis, 1879, p. 263; id. P. Z. S. 1881, p. 798; Scl. Cat. B. xiv. p. 430.

a, b. ♂ ad.; *c.* ♀ ad. Benkoka, Oct. 10, 1885.

d. ♀ ad. Benkoka, Sept. 8, 1885.

[A local species, being fairly common in parts of Northern Borneo. Though extremely bright in plumage, this *Pitta* is difficult to see, the bright scarlet breast, when turned towards one, is not so easily distinguished from the scarlet fruits and bright red dead leaves which carpet these forests. Then the bird when alarmed generally keeps its dark back towards one, which is still more difficult to see in the dusky shades of the forest. The note is peculiar, being a prolonged whistle, gradually rising in power, and suddenly ceasing when it reaches its highest pitch. These birds are good ventriloquists. I have often been looking for a *Pitta* in the opposite direction to which he was, and at last discovered the bird hopping about in the thick jungle within a few yards of my back. Iris and bill black; legs slaty blue.]

192. *PITTA CYANOPTERA*.

Pitta cyanoptera, T.; Salvad. t. c. p. 235; Sharpe, Ibis, 1879, p. 262; id. P. Z. S. 1881, p. 798; Scl. Cat. B. xiv. p. 420.

Brachyurus moluccensis (S. Müll.); Sharpe, Ibis, 1877, p. 10.

a, b. ♂; *c.* ♀ ad. Pulo Tega, April 24, 1886.

Met with on Pulo Tega in numbers during April 1886, but in the following year Mr. A. H. Everett sent a collector to that island, where he procured numbers of *Pitta muelleri* but no *P. cyanoptera*. When I visited the island there were no *P. muelleri* to be seen. This species must therefore be migratory. It is fairly plentiful in Labuan in some seasons; at other times it is not to be met with.

It frequents the ground and lower branches of trees in old forest, and is not so easy to shoot as might be imagined from its colouring, as it takes good care to keep its green back to the bird-collector. This species takes flight more often when alarmed than *P. ussheri* or any other species of this genus that I have met with. The note is a short whistle uttered sharply three times, the first note being the shrillest.

Iris black; bill dark brown; legs pale pink.]

193. *PITTA MUELLERI*.

Pitta muelleri (Bp.); Salvad. t. c. p. 240; Sharpe, P. Z. S. 1879, p. 346; id. Ibis, 1879, p. 263; id. P. Z. S. 1881, p. 798; Scl. Cat. B. xiv. p. 439.

a, b. ♂ ♀ ad. Labuan, June 15, 1886.

c. ♀ juv. Labuan, January 5, 1885.

[Fairly common in Labuan in certain months, and no doubt migrates at certain seasons to this island. Iris and bill black; feet slaty grey.

Native name for all species of *Pitta* "Teung tana."]

[To be continued.]

XLI.—*Some Notes on, and Additions to, the Chinese Avifauna.* By F. W. STYAN.

OF the eleven species of Birds enumerated below, five, I believe, have not hitherto been met with in China, and the remaining six are recorded from localities showing an extended range. I deal briefly with them as it is my intention at an early date to treat more fully of the birds of central China, to which district most of these notes refer.

1. *TROCHALOPTERUM CINEREICEPS*, Styan.

Since describing the first specimens from Yunnan (Ibis, 1887, p. 166, pl. vi.), I have met with several caged birds in Shanghai, which had been taken among the hills behind Hangchow, Chekiang province. The figure in 'The Ibis' was taken from a worn skin, and shows the central rectrices with the extremities wholly black; they should be tipped with white, though less broadly than the outer feathers.

2. *PHYLLOSCOPUS AFFINIS* (Tickell).

Two specimens obtained on the Lushan hills near Kiukiang on 29th and 30th October, at which date swarms of Willow Warblers and other migrants were collected there, on their way south. Hitherto the species does not appear to have been found east of Sechuen.

3. *ACROCEPHALUS AGRICOLA* (Jerdon).

This bird, as was to be expected, has turned up in China in summer. It is plentiful at Kiukiang, breeding among the reed-beds on the wet plains. A nest with four eggs was brought me in June, the former deep cup-shaped, suspended between three reeds, and formed entirely of dry grasses: the eggs have a pale greenish-blue ground mottled with grey and moss-brown. This species remained as late as 12th October, when I shot one in very rich russet plumage newly assumed.

Mr. H. H. Slater has kindly identified the species by comparison with Indian skins.

4. *CETTIA FORTIPES* (Hodgson).

This species is not confined, in China, to the southern provinces, but is very abundant throughout the Yangtse valley in summer. A few remain during the winter, as is also the case with *C. canturiens* and, possibly, with *C. minuta*, though I have not met with the last named later than 6th November.

5. *PARUS VENUSTULUS*, Swinhoe, P. Z. S. 1870, p. 133.

The range of this species is much wider than is generally known. Mr. De la Tonche has met with it in Fokien pro-

vince; I have a female from Pekin; and it is abundant at Kiukiang, though, being a bird easily passed by, I have only lately noticed it.

In the adult males there is considerable variation in the amount of yellow in the nuchal patch, the broad stripe on the side of the head, and the spots on the wing-coverts. In some specimens these parts are almost pure white, in others they are strongly tinged with yellow. One bird has the rump-feathers tipped with greenish yellow. Two males not quite adult have the black of the head and throat broken, in the one case by yellow, and in the other by white spots.

The fully adult female has the crown and sides of the head, and a broad moustache, pale blue-grey, throat dull white, broad stripe down side of head and neck dull white tinged with yellow in lower portion, nuchal patch ditto; back yellowish green, brighter on the rump, slightly washed with blue-grey across the shoulder and on the rump; upper tail-coverts black, sometimes tipped with green. Wings and tail as in the male, but browner, and with yellow edgings to the primaries and rectrices instead of blue. Underparts below the throat bright yellow, washed with greenish on the flanks. Younger females are much yellower, having no white throat and no blue-grey head, all the upper parts being dull greenish brown. The young male is probably similar.

6. *ANORTHURA FUMIGATA* (Temm.).

A specimen of this Wren, which appeared to be confined to the north of China and Japan, was shot last year at Shanghai and is now in the Museum there.

7. *MOTACILLA GRANDIS*, Sharpe.

I have received a single example of this Japanese species from Pekin; it is a typical adult with a white chin.

8. *EMBERIZA YESSOENSIS*.

Schaenicola yessoensis, Swinhoe, Ibis, 1874, p. 161.

I am unable to refer to Swinhoe's original description of this bird, and therefore am not aware whether he noted its occurrence in China*. It is not uncommon about Shanghai in winter, but does not, I think, remain to breed. One I

* [Swinhoe described this species from Japanese (Hakodadi) specimens.—Ed.]

shot on 2nd November, evidently migrating, on a small rocky islet off the coast, where its solitary companion was a *Tarsiger cyanurus*.

A specimen killed at Shanghai on 28th February is in almost full plumage, the black throat being only slightly barred with white, and a few brown spots appearing in the crown.

9. *PASTOR ROSEUS* (L.).

A single immature specimen now in the Shanghai Museum was shot in the spring of 1888 at Shanghai. It was probably one of a flock, as the native who killed it would not be likely to fire at a single bird of this description.

I am not aware whether there is more than one species of Rose-coloured Starling known, and have no skins or books of reference to guide me, so may be wrong in attaching the name of the European species to this bird.

10. *HALCYON COROMANDA* (Lath.).

This southern species, which occurs in Formosa, the Liuchiu Islands, and Japan, occasionally appears in China. A specimen in the Shanghai Museum was taken on an island at the mouth of the Yangtse; one was sent to the British Museum among a collection of birds made in Manchuria by Mr. H. E. M. James; and a native who knows birds well tells me he has met with it in the province of Kiangsi.

11. *DENDROCYGNA JAVANICA* (Horsf.).

A specimen in the Shanghai Museum was taken near Soochow last autumn. It is probably a very rare visitor to China, though the *Nettapus coromandelianus* comes in large numbers to breed in the Yangtse valley every year.

XLII.—*On the Genus Turnix*. By W. R. OGILVIE-GRANT.
(Plate XIV.)

THE twenty-two known species of the genus *Turnix* are primarily divisible into a few groups which can be easily distinguished from one another; but to clearly define each of the several species included in these groups is by no

means so easy a matter. This will soon become apparent to anyone making a study of the genus, for most of the species pass through intricate changes of plumage, and every character seems to be subject to variation. Whether we look to general colour, markings, size, or other characters, it is almost impossible to form an opinion as to the value of a species without having first studied the group or had a considerable series of specimens to judge from. Nevertheless it will be found that, after allowing a certain margin for variation, these individual differences in plumage are not so irregular as would at first appear, all of them being stages through which each bird passes before reaching maturity. In making our comparisons several things have to be borne in mind.

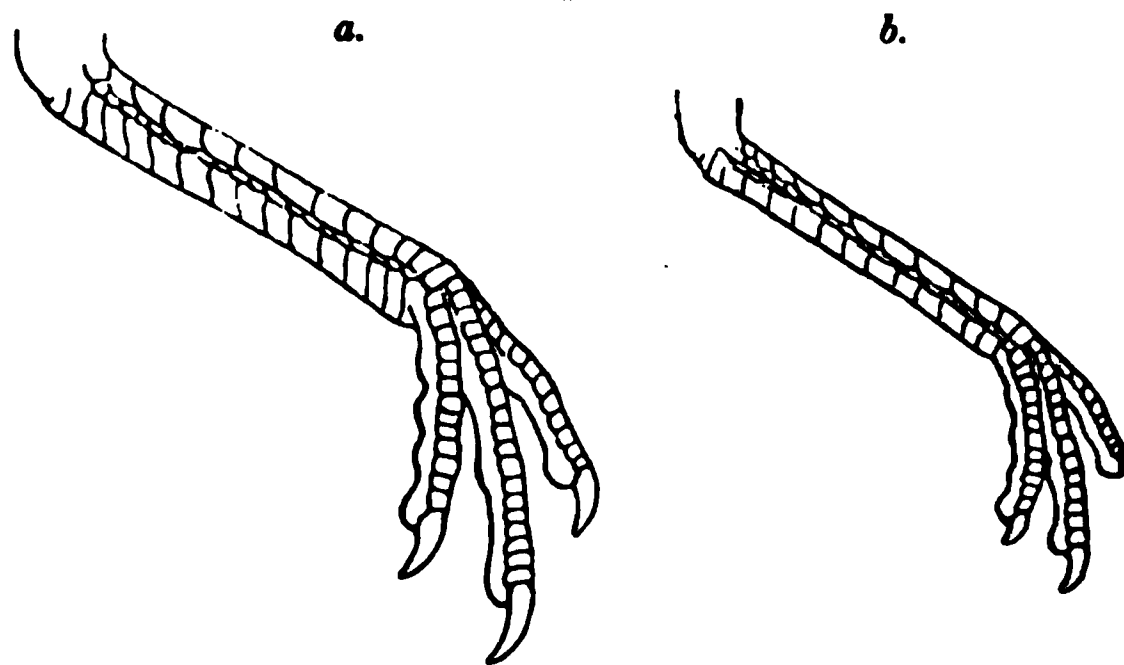
Firstly, that the *females* are the birds in which we must look for specific distinctions, for in this abnormal group the position of the sexes is so far reversed, that the *females* are larger and more handsomely coloured than the males, which in some of the species, at least, and probably in all, are compelled to sit on and hatch the eggs, while the females are amusing themselves by wandering about and engaging in fierce conflicts with one another.

Secondly, that the males, as a general rule, resemble the *young* females and, in several species, are so like one another that they are difficult or impossible to distinguish, while their respective adult females differ widely from one another and may even belong to different sections of the group. As an instance of this we may compare the species of the Philippine Islands, *T. fasciata*, with *T. rufilatus*, which inhabits Celebes. The males of these are much alike, though in the Philippine bird (except in very old examples) there is usually an indication of a rufous nuchal collar, and the ground-colour of the breast is buff instead of white. But the adult females differ widely, those of the Philippine species having the chin and throat and middle of the breast deep black and a broad rufous nuchal collar; while in the Celebean species we find the chin and throat barred with black and white like the breast, and the upper surface uniform. Thus it is clear that it is

as dangerous to base a new species on a male specimen only of any *Turnix*, as it would be to describe a female specimen of *Phasianus* or *Excalfactoria* as new without having first seen the male.

Thirdly, that there is a general tendency to uniformity of coloration in the plumage of the upper surface of very old birds, the bars, spots, and markings of the younger stages gradually disappearing with age.

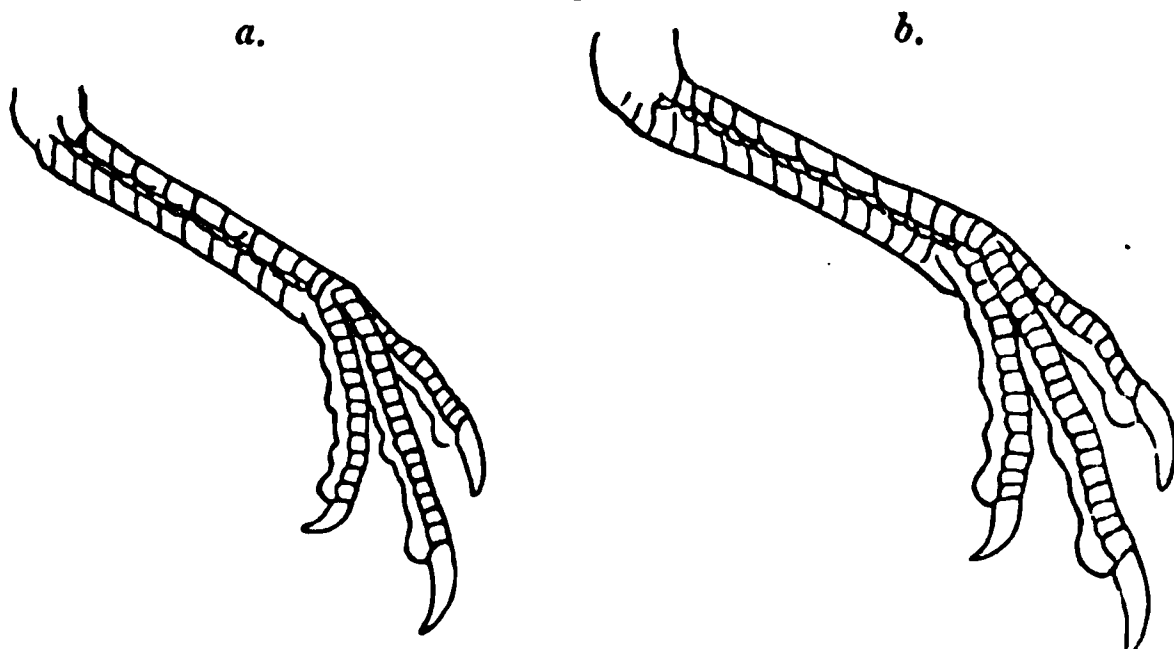
Fig. 1.



a. Foot of *Turnix ocellata*.

b. Foot of *Turnix tanki*.

Fig. 2.



a. Foot of *Turnix nigricollis*.

b. Foot of *Turnix melanogaster*.

Fourthly, that the males, in some cases at least, retain the characters of the young longer than the females.

Fifthly, that the black throats, the rufous nuchal collars, and such-like marks which distinguish the adult females in

the different groups are not seasonal or nuptial plumages, as supposed by some authors, but denote maturity, and are to be found at all seasons in fully adult females.

Note.—1. The species *T. nigrifrons*, auct., of which the type is in the Paris Museum, is founded on a made-up specimen with the head of a Painted Sand Grouse (*Pterocles fasciatus*) and the body of the Indo-Malayan Button Quail (*Turnix blanfordi*). I came to this conclusion from an examination of Vieillot's figure, and Mr. Bowdler Sharpe, who has kindly examined the type in the Paris Museum, finds my surmise to be correct.

2. *Turnix beccarii*, described by Count Salvadori (Ann. Mus. Genov. vii. p. 675) from Celebes, appears to be absolutely identical with *T. rufescens*, Wallace.

3. *Turnix variegatus*, Vieillot, is probably a Tinamou (*Nothura media*), but I have been unable to have this identification verified.

Key to the Species of Turnix.

- I. Tarsus longer than middle toe and claw (see fig. 1, p. 448); bill slender or only moderately strong.
 - A. Entire breast transversely barred with black; belly immaculate. Sexes different.
 - a¹. Chin and throat (and in very old birds the middle of the chest) black.
 - a². No rufous nuchal collar differentiated from the back *T. taigoor*, ♀ ad.
 - b². A fairly defined rufous nuchal collar. *T. pugnax*, ♀ ad.
 - c². A well-defined rufous nuchal collar. *T. fasciata*, ♀ ad.
 - b¹. Chin and throat barred with black like breast.
 - a³. Sides of abdomen, thighs, and under tail-coverts rufous *T. rufilatus*, ♀ ad.
 - e². Under surface without rufous *T. powelli*, ♀ ad.
 - c¹. Chin and throat white, sides only with narrow black edgings to the feathers.
 - f². Chest barred with black and white.
 - a³. Sides of abdomen, thighs, and under tail-coverts rufous *T. rufilatus*, ♂ ad.
 - b³. Under surface without rufous *T. powelli*, ♂ ad.

*g*³. Chest barred with black and buff.

*c*³. No rufous nuchal collar differentiated from back.

*a*⁴. Abdomen and thighs rufous, } *T. taigoor*, ♂ ad. & ♀ imm.
back rufous or brown. } *T. pugnax*, ♂ ad. & ♀ imm.

*b*⁴. Abdomen whitish, thighs rufous,
back blackish grey. *T. fasciata*, ♂ ad.

*d*³. A rufous nuchal collar *T. fasciata*, ♂ & ♀ imm.

B. Centre of breast not transversely barred with black; throat never black. Sexes similar in one group, but slightly different in the other section.

*d*¹. Middle feathers of the tail elongated and pointed and edged with white or buff; feathers of the upper surface edged with white or buff, giving the back a scaly appearance. Sexes similar.

*h*². Centre of breast and belly immaculate; sides of breast spotted with black or barred with black and white.

*e*³. Scapulars margined with white or whitish grey. Feathers on sides of breast pale buff, contrasting strongly with the rust-red centre of the breast, each with a heart-shaped subterminal black spot.

*c*⁴. Larger; wing ca. 3·7 in ♀ *T. sylvatica*, ♂ & ♀ ad.

*d*⁴. Smaller; wing ca. 3·3 in ♀ . . *T. lepurana*, ♂ & ♀ ad.

*f*³. Scapulars margined with golden buff or straw-colour.

*e*⁴. Feathers on the sides of the breast buff, contrasting but slightly with the brighter buff centre of the breast; each with a subterminal black, or black and rufous spot. Wing ca. 2·9 in ♀ *T. dussumieri*, ♂ & ♀ ad.

*f*⁴. Feathers on the sides of the breast with the ends barred transversely with black and white *T. nana*, ♂ & ♀ ad.

*i*². Centre of breast and belly with round subterminal black spots on most

- of the feathers; sides of breast with terminal black and white transverse bars (as in *T. nana*).... *T. hottentotta*, ♂ & ♀ ad.
- e*¹. Middle tail-feathers not elongated and pointed, nor edged with white or buff; feathers of upper surface without any scaly appearance. Sexes different.
- k*². A well-defined rufous nuchal collar.
- g*³. Scapulars not edged with golden buff.
- g*⁴. Back uniform greyish brown, with fine faint wavy transverse bars of darker brown. Wing ca. 3.5 *T. tanki*, ♀ ad.
- h*⁴. Back brownish grey, irregularly blotched and vermiculated with black and sometimes with traces of rufous; nuchal collar bright rufous, narrower. Wing ca. 3.9 *T. blanfordi*, ♀ ad.
- i*⁴. Back dark brownish grey, irregularly blotched and vermiculated with black and rufous; nuchal collar dark rufous, wider. Wing ca. 3.2 *T. albiventris*, ♀ ad.
- h*³. Scapulars edged with golden buff*.
- k*⁴. Throat and breast pale rufous, belly buffy white. Bill slender. *T. maculosa*, ♀ ad.
- l*². No rufous collar, and no rufous in feathers of upper surface or with only traces of this colour.
- i*³. Scapulars not edged with golden buff.
- l*⁴. Back uniform greyish brown, with fine wavy transverse bars of darker *T. tanki*, ♂ ad.
- m*⁴. Back brownish grey, irregularly blotched and vermiculated with black *T. blanfordi*, ♂ ad.
- n*⁴. Back dark brownish grey, irregularly blotched and vermiculated with black and rufous .. *T. albiventris*, ♂ ad.

* The ♀ of *T. rufescens*, Wallace, which is at present unknown, must evidently be closely allied to *T. maculosa*, judging from the type (? ♂ ad.).

- k*³. Scapulars edged with golden buff.
- o*⁴. Chest rufous; upper surface greyish black.
- a*⁵. Throat buff *T. saturata*, ♀ ad.
- b*⁵. Throat white *T. saturata*, ♂ ad.
- p*¹. Chest buff; upper surface greyish brown *T. maculosa*, ♂ ad.
- q*¹. Chest rufous; upper surface greyish brown *T. rufescens*, ? ♂ ad.
- m*². No defined rufous nuchal collar, but most of the feathers of the upper surface (especially those of the nuchal region) with a patch at the extremity rufous or rufous intermixed with black.
- l*². Scapulars not edged with golden buff } *T. tanki*, *blanfordi*, and *albiventris*, ♂ & ♀ imm.
- m*³. Scapulars edged with golden buff } *T. saturata* and *T. maculosa*, ♂ & ♀ imm.
- C. Neck and breast uniform bright rufous; upper tail-coverts very long, entirely covering the true tail.
- f*¹. Chin, throat, and cheeks black and white (almost black in very old birds). *T. ocellata*, ♀ ad.
- g*¹. Chin and throat white spotted with black *T. ocellata*, ♂ ad.
- II. Tarsus equal to or shorter than the middle toe and claw (see fig. 2, p. 448), bill slender or very stout.
- D. Breast and belly uniform dove-grey, shoulders and sides of chest very bright rufous; chin and throat deep black edged with white. Bill slender *T. nigricollis*, ♂ & ♀ ad.
- E. Chest black, many of the feathers having terminal bars of white; upper surface umber, with here and there irregular marks of black, rufous, and white. Bill fairly strong *T. melanogaster*, ♀ ad.
- F. Chest whitish, with a wide V-shaped subterminal black mark across each feather; upper surface as in ♀ ad. Bill not so strong *T. melanogaster*, ♂ ad.
- G. Chest buff, irregularly spotted and marked with grey; no rufous nuchal collar, but otherwise the upper surface similar to that of ♀ ad. Bill slender *T. varia*, ♂ ad.
- II. Chest grey; each feather with a pale

buff or whitish shaft-streak, becoming more or less spatulate towards the margin. Feathers surrounding the eye black spotted with white.

h¹. Bill moderately stout; a fairly defined bright rufous nuchal collar; back black, each feather irregularly and narrowly barred with rufous. *T. varia*, ♀ ad.

i¹. Bill very stout; upper surface uniform dull light red, one or two of the feathers of the middle of the back mixed with black *T. castanonota*, ♂ & ♀ ad.

I. Chest rufous. Feathers round the eye black spotted with white. Upper surface stone-grey, most of the feathers of the back with narrow transverse bars of rufous and black *T. pyrrhorax*, ♂ & ♀ ad.

K. Chest dull light red, darker at the sides than in the middle. Feathers surrounding the eye dull light red, like the rest of the upper surface. Bill very stout . . . *T. velox*, ♂ & ♀ ad.

In the first section of the genus *Turnix*, which contains the greater number of the species, all are distinguished by having the tarsus longer than the middle toe and claw (see fig. 1, p. 448).

GROUP I.—I shall begin by dealing with the members of the group which have the breast-feathers *barred*, and in which the *adult female* has the *throat and middle of the breast black*.

Messrs. Hume and Marshall, in the 'Game Birds of India, Burmah and Ceylon,' consider that in these countries two species, *Turnix plumbeipes* and *T. taigoor*, can be distinguished and are found in different geographical areas, the former inhabiting the higher and well-watered jungle-districts where the rainfall is heavy, while the latter is found only in dry regions where the rainfall is moderate.

The National Collection now contains Mr. Hume's large series of these little birds, without which it would be utterly impossible to arrive at any satisfactory conclusion when so much variety in plumage and size is found among individuals of the same species; and I hope from this material not only to be able to prove to my readers that these two species,

together with two others (*T. rostrata* and *T. blakistoni*), which I shall discuss, are merely climatic varieties of one and the same bird, but also to point out the reasons which lead to such a strange diversity of plumage.

Mr. Hume allows that the only difference which can be relied on for distinguishing *T. taigoor* from *T. plumbeipes* is that "the prevailing tint of the interscapular region and back in the Indian Bustard Quail is *rufous*, in the Indo-Malayan bird *brown*;" and he goes on to say, "there are differences of markings, but no weight must be attached to these, as they are individual. Scarcely any two specimens of either species are precisely alike, but almost every variation in markings in one species will be found also in some specimens in the other. It is solely, so far as I can ascertain, by the prevailing tone of the colour of the upper surface that the two species can be separated." He adds, "This may seem an insufficient reason for making two species of the form; but it has to be noted that, if taking a large series from all parts of the empire you separate the two forms, you find that all the really red birds (the present species) are from one geographical area, and all the brown ones from another." Our series includes specimens from a number of localities not represented in Mr. Hume's collection, and these entirely upset his theory; for I find it impossible to draw any line between his two species. I have before me intermediate forms neither brown nor red, but a mixture of both, inhabiting localities where the rainfall is not excessive, and I am convinced that there is really only one species (*T. taigoor*) which ranges through India, Burmah, Malay, Siam and China to Formosa and the Loo Choo Islands, and that the key to the constant variety in the tone of the plumage is to be found in the effect of the amount of annual rainfall in the country which the birds inhabit. By going through the whole of our huge series and comparing the tone of the plumage with the amount of rainfall in the habitat of the bird, I find this theory exactly borne out; for where rain is abundant the prevailing colour of the upper parts is dark brown, where it is moderate the tone is more rufous, and

where it is small the birds are very bright rufous. I may refer my readers to the map of India, showing the mean annual distribution of the rainfall in English inches, published by Mr. Hume in 'Stray Feathers,' vol. vii. p. 501 (1878).

1. TURNIX TAIGOOR (Sykes) *.

(1832.) *Hemipodius taigoor*, Sykes, P. Z. S. 1832, p. 155 ; Beng. Sport. Mag., Oct. 1836, p. 171, pl. i. fig. 8 (♀ ad.).

(1837.) *Turnix plumbipes*, Hodgson, MS. (?), Bengal Sport. Mag., May 1837, p. 346.

(1839.) *Hemipodius atrogularis*, Eyton, P. Z. S. 1839, p. 107.

(1842.) *Turnix taigoor*, Blyth, J. As. Soc. Beng. 1842, p. 803 *.

(1861.) *Turnix rostrata*, Swinhoe, Ibis, 1861, p. 50.

(1871.) *Areoturnix blakistoni*, Swinhoe, P. Z. S. 1871, p. 401.

The furthest range of this species, so far as is at present known, is the Loo Choo Islands, whence a male specimen was procured by Mr. Namiye, and first recorded by Mr. Stejneger in his paper on the "Birds of Japan" (P. U. S. Nat. Mus. ix. p. 635) under the name of *T. blakistoni*—a name given by Mr. Swinhoe to a male specimen obtained at Canton, where the annual rainfall is 69 inches. Since then, Mr. Seebohm has procured a second specimen, an adult female, from Loo Choo, and this, together with Mr. Swinhoe's male type from Canton, he has, with his usual generosity, lent me for inspection. The characters which Mr. Swinhoe ascribed to this species as distinguishing it from *T. pugnax* (as he called it, meaning "*plumbipes*" type) of Malacca were its smaller size, shorter toes, and small bill, and he adds that "instead of spots it has numerous bands across the breast"†, and its upper parts are

* I use the expression "*taigoor*" type in the sense in which it is understood by Hume in his 'Game Birds,' i. e. to express the rufous phase of this bird ; while "*plumbipes*" is used to express the brown phase.

† It is difficult to understand what Swinhoe can have meant by this expression, as he had previously remarked that his specimen belonged to

very rufous. I find the specimen in question to be a very normally coloured male of the "*taigoor*" type, and exactly like dozens of other male specimens from the dry and intermediate zones of India; while the adult female from Loo Choo likewise cannot be distinguished from adult females from the southern parts of the Indian Peninsula. At Takow, in the south of the island of Formosa, Mr. Swinhoe procured a number of examples of this species of the brown or "*plumbipes*" type, which he first called *T. ocellata*, probably meaning *T. fasciata*, but afterwards described as a new species under the name of *T. rostrata*, which he considered distinct from the Malaccan bird. This is, however, not the case; for I find in our Indo-Malayan series the exact counterparts of all his Formosan specimens. The name *rostrata* also means nothing; for the bill, which is subject to great variation in size according to age and sex, is no larger in the largest of his female specimens than that of *T. taigoor*.

No doubt this species is distributed throughout S. China in favourable localities and will be brought to bag and recorded sooner or later, though its skulking habits render it difficult to procure; but no example has been recorded, nor have we any representatives to indicate its range till we reach Siam. From this country we have in the Museum two specimens, a female and a male, of the ordinary "*plumbipes*" type of coloration, but both very old birds with the markings on the upper surface nearly obsolete. The male, collected by Mr. L. Layard at Nahconchaisee on June 2nd, 1872, was sitting on four eggs and has been sexed by the collector as "female, breeding-plumage;" but the plumage and other circumstances show that this is incorrect.

From Singapore to Kaukaryit on the Salween River, a district where rain is abundant, we have a very large and uniform series of the "*plumbipes*" type with only slight variation in the tone of colour of the upper surface; and the few

the *ocellata* (?) group (meaning either *T. fasciata* or *T. taigoor*), unless he was comparing it with *T. blanfordi*, which is the common species of China and with which, of course, it has nothing to do.

specimens inclining to rufous are young birds, and these mostly males. Two quite young males from Klang and a female of the same age from Tavoy have a large amount of rufous buff intermixed with the upper surface plumage, showing that this is a juvenile character and is probably retained longer in the plumage of the males than in the females.

No sooner do we leave Tenasserim and cross over the Nat-toung Mountains, between the Salween and Sittang Rivers, into Pegu, where the country is comparatively much drier, than the tone of the plumage of the upper surface changes, and we find even adult females with the rufous or "*taigoor*" phase more or less developed in a series of specimens from Pegu, Thayetmyo, and Tonghoo, while in four birds from Karennee, obtained by Captain Wardlaw Ramsay in a dry plain near Kyaiphogyee, where the rainfall is small, the upper surface is bright rufous, and one, a nearly adult female, is in every respect similar to the brightest specimens of the "*taigoor*" from Central and Southern India. Birds from Manipur, Tipperah, and Dibrughur are all "*plumbipes*," but in Shillong, where the rainfall is only 68 inches, they incline to rufous. In a large series of specimens from Sikhim, together with a male from Nawakote, the plumage of the upper parts is of the true "*plumbipes*" type, with the exception of a couple of *young* males from Sikhim, which have a decidedly rufous tone. All the specimens, both male and female, obtained by Hodgson in Nepal in the valley below Katmandoo, where the rainfall is probably more than 52 inches, are exactly halfway between typical "*plumbipes*" and "*taigoor*," while examples from Calcutta (66 inches), Burdwan, and Muddapur, &c. (55–60 inches) are nearly of the ordinary "*taigoor*" type. Those, again, from Cawnpur (29 inches) and Jhansie (35 inches), Jubbulpur, Khandeish, Cutch, and Raipur are somewhat brighter, and the brightest of all are from Ahmednugger, Dopuli on the frontier of S. Konkan, Belgaum, Mysore, Madras, and Coimbatore. Specimens from N.E. Ceylon, where the rainfall is small, are said to be the same

as those from Southern India, but I have never seen an example.

Summing up these facts we arrive at the following results :—

1. That birds from N.E. Ceylon (?), South and Central India, cannot be distinguished from specimens obtained in Karennee, at Canton, and in the Loo Choo Islands, and are of the true "*taigoor*" type.

2. That specimens from Nawakote, Sikhim, and the Malayan peninsula are similar to those from Siam and Formosa, and are of the true "*plumbipes*" type.

3. That specimens from Pegu, Thayetmyo, Tonghoo, Shilong, the Nepal valley below Katmandoo and Calcutta represent every variety of intermediate stages between these two types.

4. That the amount of rainfall in these different places and countries, where the tone of the upper plumage in the birds is alike, is almost identical.

5. That it is impossible to recognize more than one species, *Turnix taigoor* (Sykes), in which the tone of the upper parts varies in different localities from *rufous* to *dark brown grey* in proportion as the rainfall is small or great in that part of the country where the examples occur. Sykes's type is preserved in our National Collection.

I have been unable to discover any record of the rainfall in the Loo Choo Islands or in S. Formosa, but at Kclung in the north of the latter island the rainfall is 122 inches (Schrenck, 'Reisen und Forsch. im Amur-Lande,' iv. p. 490). That of Loo Choo, judging from the specimens obtained at Napa, should be less than 70 inches. At Bangkok the rainfall is recorded by Dr. Campbell as being 67·04 inches (Q. J. Met. Soc. v. p. 62).

2. *TURNIX PUGNAX*, Temm.

Turnix pugnax, Temminck, Fig. et Gall. iii. pp. 612, 754.

Of the Ceylon birds, Blyth says there are two varieties—one abundant throughout the flat northern half of the island, which agrees with that of India generally; the other with a more deeply coloured cinnamon abdominal region, which is

as common in the south, and perhaps may be met with in the mountainous parts of S. India. No doubt there are two forms found in Ceylon, but they cannot be distinguished by the colour of the belly. The former from the intermediate zone is similar in all probability to the birds of the true "*taigoor*" type from South and Central India, &c., but of this form, as already remarked, I have seen no examples; while the latter, of which we have a fair series, inhabits the south-western portion of the island, where the rainfall is heavy, and is *precisely* identical with the Sumatran and Javan birds known as *T. pugnax*.

Though only an insular form of *T. taigoor*, I consider that *T. pugnax* should be retained under its present name, for in the adult female there is always a fairly marked rufous nuchal collar, which is distinctly differentiated from the colour of the back, showing a step towards the Philippine bird *T. fasciata* with its heavy rufous collar. There is no difference in size between *T. taigoor* and *T. pugnax* taken as a whole.

3. TURNIX FASCIATA, Temm.

(1815.) *Turnix fasciatus*, Temminck, *Pig. et Gall.* iii. pp. 634, 757.

(1877.) *Turnix nigrescens*, Twceddale, *P. Z. S.* 1877, p. 765.

(1888.) *Turnix haynaldi*, Blasius, *Ornis*, iv. p. 317.

Of the rufous-collared birds of this group of *Turnix* which inhabit the Philippine Islands three species have been distinguished. The description of the original specimen given by Temminck (*Pig. et Gall.* iii. pp. 634, 757) is clearly based on an immature female or male, almost certainly the former, with which his description agrees exactly, for (p. 757) he says, "*gula pectoreque albo et nigro transversim fasciatis*," from which we may safely infer that the black throat of the adult was beginning to appear. Each of the throat-feathers becomes black at the tip and the base in this intermediate stage before the female becomes adult, while at the same time the dark brownish-black head and back begin to take the place of the more rufous young plumage, each feather of the top of the head becoming dark at the base and

remaining lighter round the margin only, while on the back the rufous gradually dies out and gives place to more sombre grey and black, and most of the white spots and markings disappear; the bill, too, becomes yellow instead of brownish green.

In this, the fully adult plumage, this species was named *T. nigrescens* by Lord Tweeddale, partly on account of the darker colour of the upper surface and partly on account of its larger size, which is clearly due to age alone. Mr. John Whitehead recently procured two pairs of this bird in Palawan, in the "*nigrescens*" or fully adult stage, which he has been kind enough to lend me for examination, and they agree in every particular with Lord Tweeddale's types from Cebu. Last year Dr. W. Blasius, in the above-quoted periodical, described a *Turnix* from Palawan under the name of *T. haynaldi*. There cannot be the slightest doubt that his description is based on an immature male of this species and has nothing whatever to do with *T. rufilatus*, Wallace, much less with *T. sylvatica*, which belong to different sections of the genus. The males of *T. rufilatus* and *T. fasciata* do, no doubt, resemble one another, though the former has never any rufous collar (see previous remarks on p. 447).

GROUP II.—Only two species are included in this group, viz., *T. rufilatus* from Celebes and *T. powelli* from the Island of Api, Sumbawa.

Both sexes in each species have the entire chest barred transversely with black and *white*; and while in the adult females the throat is similarly coloured to the chest, in the males it is white with just a few of the outer feathers edged with darker.

4. TURNIX RUFILATUS, Wallace.

(1861.) *Turnix fasciatus*, Gould (nec Temm.), Birds of Asia, vii. pl. 11.

(1865.) *Turnix rufilatus*, Wallace, P. Z. S. 1865, p. 480.

In none of the specimens before us is there any trace of a rufous nuchal collar, and the general tone of the upper surface is brown, becoming reddish brown towards the rump

in the younger female and male examples, while all the upper parts except the head are finely marked with wavy transverse bars of black. In the younger female and male birds, too, most of the scapulars and the middle feathers of the back are heavily blotched with black and irregularly margined with white; but in our most adult female specimens these markings have almost disappeared, leaving the upper surface nearly uniform brown, crossed transversely with fine wavy lines of darker. The types of this species were obtained at Macassar, Celebes, by Mr. A. R. Wallace, and are in our National Collection.

5. *TURNIX POWELLI*, Guillemard.

Turnix powelli, Guillemard, P. Z. S. 1885, p. 510, pl. xxix.

I have been unable to examine specimens of this species, so can only quote from the description of Dr. Guillemard.

He says, this species "is at once recognizable (from *T. rufilatus*) by the entire absence of rufous on the abdomen and thighs. Cervix darker, barring on breast more distinct and extending much lower; and the black stripe on the throat of the male bird is considerably more restricted."

Hab. Api Island, Sumbawa.

GROUP III.—The species included in this group are in most respects nearly allied to that which follows, but differ in several important particulars.

The sexes are practically the same, although the male is smaller and paler; the middle tail-feathers are elongated, pointed and edged with buff or white, and the feathers of the upper surface are edged with similar colours, giving the back a scaly appearance, which is often increased by the pattern of black and buff, &c., following the shape of the feather more or less instead of crossing it transversely.

The sides of the neck and breast in both sexes are ornamented with black spots or barred with black and white, and the throat, middle of the breast, and abdomen are immaculate. The scapulars are margined with whitish or golden buff.

The species *T. hottentotta* really belongs to this group, being most nearly allied to *T. nana*, but having the middle

of the breast and belly spotted with black is for convenience' sake placed by itself in the Key.

6. *TURNIX SYLVATICA* (Desf.).

(1787.) *Tetrao sylvaticus*, Desfontaines, Mém. Ac. R. Sc. Paris, 1787, p. 500, pl. xiii.

Turnix sylvatica, Dresser, B. of Europe, vii. p. 249, pl. 494.

Of this well-known species, which is found in S.W. Europe and N. Africa, little or nothing need be said beyond that, as far as plumage goes, it is absolutely identical with the next-mentioned species or race *T. lepurana*, which ranges, so far as is known, from Fantee to Bechuanaland and Massailand. The differences pointed out in my Key present all the distinctive characters which distinguish this species from the allied Hemipodes.

7. *TURNIX LEPURANA* (Smith).

(1836.) *Ortygis lepurana*, Smith, Rep. of Exp. App. p. 55.

(1849.) *Hemipodius lepurana*, Smith, Illust. Zool. S. Afr. pl. xvi. with text.

This so-called species, which was first described by Smith from Bechuanaland, is simply a smaller race of the South-European and North-African *T. sylvatica*, with which it is *absolutely identical* except in size. In the female of *T. sylvatica* the wing is about 3·7 inches and in that of the race *T. lepurana* it is only ca. 3·3 inches.

The range of this race appears to be from Bechuanaland to the Accra district of the Gold Coast, roughly speaking; but it is probably also found in all the grassy valleys further north, and has been recorded from Massailand by Dr. S. A. Fischer. The type of this species, obtained at Kurichane by Smith, is in our National Collection.

8. *TURNIX DUSSUMIERI*, Temm.

(1822.) *Turnix dussumieri*, Temminck, Pl. Col. d'Ois. vol. v. pl. 454. fig. 2.

(1837.) *Hemipodius variabilis*, Hodgson, MS. (?), Beng. Sport. Mag. 1837, p. 345.

(1849.) *Hemipodius sykesi*, Smith, Ill. Zool. S. Afr. ii. (see *H. lepurana*, pl. 16, footnote).

(1869.) *Turnix dussumieri*, Gould, Birds of Asia, vii. pl. 16.

This is the smallest species belonging to the genus, and reminds us strongly at first of *T. lepurana* from W. Africa, but may be distinguished from that species by a glance at the wide golden buff or straw-coloured margins of the scapulars.

In the quite young birds the whole upper surface is reddish brown, becoming more distinctly rufous on the nuchal region, with wavy transverse lines of black and scattered spots of whitish, especially on the wing-coverts; the breast is white, spotted and marked with black.

The fully adult female is larger (wing ca. 2·9) than the male (wing ca. 2·7) and has more rufous in the plumage of the upper surface, especially on the nuchal region. The fully adult males and the younger females are alike and have the upper surface buffy brown.

This species is found in suitable localities over a wide range, for we have specimens from Central and Northern India, Pegu, and Formosa.

9. TURNIX NANA (Sund.).

Hemipodius nanus, Sundevall, Öfv. Vet.-Akad. Förhandl. 1850, p. 110.

This, like the next species *T. hottentotta*, is easily distinguished from all others of this section of the genus by having the ends of the feathers along the sides of the neck and breast regularly *barred* with black and white instead of being *spotted* with black.

Our series, though a poor one of only eight specimens, represents fairly well the changes in the plumage.

In the quite young bird the whole of the under surface is white except a small amount of bright buff which is beginning to make its appearance on the breast, which is *entirely* barred with black and white. This, however, does not extend on to the abdomen, which is pure white, so that even at this early stage it can be easily distinguished from the young of *T. hottentotta*. As age advances, the changes in the female are as

follows :—cheeks, lores, superciliary stripe, neck, and breast become bright uniform rufous buff, and the barring on the latter is confined to the sides. In the male the changes are similar, but the buff does not become so bright and pure especially about the cheeks.

This species appears to have a wide range, being represented by specimens from Natal and Accra on the Gold Coast.

10. *TURNIX HOTTENTOTTA*, Temm.

(1815.) *Turnix hottentotta*, Temminck, *Pig. et Gall.* iii. pp. 636, 757.

The young of this species in most respects resembles *T. nana*, but the belly as well as the breast is barred and spotted with black. As age advances, the lores, superciliary stripes, cheeks, neck, and breast become bright rufous buff, the barring on the breast becomes confined to the sides, but most of the feathers of the middle of the breast and of the abdomen are ornamented with a rounded subterminal black spot.

I am unable to state how the adult male differs from the female, having no sexed specimen, but it is probably similar, but less bright.

This species appears to be confined to the extreme south of the African continent south of the Great Karroo.

Mr. Sharpe (Layard, B. S. A. p. 607), quoting Capt. Shelley, says that this bird (*T. hottentotta*) is fairly plentiful about Pine-town. This is of course a mistake, as the birds obtained by Capt. Shelley belong to *T. nana*. Moreover both Mr. Layard in his 'Birds of S. Africa,' and Mr. Sharpe in his second edition of that work, in describing *T. hottentotta*, make no mention of any black spots on the feathers of the breast and belly, which is almost the only distinctive character between this species and *T. nana*. On the other hand, Mr. Layard distinctly says that "this handsome little bird is found sparingly throughout the colony, evidently in the *most southern part of the continent*," and that the wing is 3·4 (it is 3·2 in *T. nana*). These facts make me think that his bird is

the true *hottentotta* and that, though he has omitted to mention the black spots on the breast and belly in his description, it ought not to be referred to the synonymy of *T. nana*.

GROUP IV.—We now come to the group of *Turnix* in which the sexes are different and the middle tail-feathers are not elongated and pointed and edged with buff, and the feathers of the upper surface do not present a scaly appearance. The sides of the neck and breast in both sexes are ornamented with round black spots, and the throat and middle of the breast and abdomen are immaculate. The scapulars may or may not be edged with golden buff. The adult female has a wide rufous nuchal collar (except in *T. saturata*), which is entirely absent in the fully mature male. The species here included are the Asiatic Button Quails, *T. tanki*, *T. blanfordi* (= *T. maculosa* of Hume), and *T. albiventris*, together with *T. saturata* from New Britain and *T. maculosa* from Australia, also the somewhat doubtful species *T. rufescens* of Wallace, from the island of Semaou, which will probably prove to be identical with Count Salvadori's *T. beccarii* from Celebes. Of these, the first three are distinguished by Messrs. Hume and Marshall (in the 'Game Birds of India, Burmah, and Ceylon'), though, partly from want of specimens when they wrote this excellent work, they had entirely failed to recognize the real distinctions between them, nor have they made any mention of the intricate changes of plumage between the young and adult*.

The fact is that the sexes, when fully adult, differ greatly in plumage from one another; but the difficulty experienced in these species is that *the younger birds of both sexes in all three* bear a very close resemblance to one another, and it is only in the *fully adult* that the distinctive characters of the species and sexes are clearly shown. All three species begin

* Mr Hume had apparently no *fully adult* female specimens of either *T. tanki* or *blanfordi* (= *T. maculosa*, Hume) till he bought Mandelli's collection, with the exception of a *fully adult female* of the former species, which was obtained in Hill Tipperah, where *T. blanfordi* also occurs. This bird was not sexed by the collector, but was figured by Mr. Hume in his 'Game Birds' as the fully adult male of his *T. maculosa*.

by having the upper surface greyish brown more or less blotched and vermiculated with black, while many of the feathers of the mantle and back have a patch of rufous at the tip, and are spotted or marked with dirty white, and it is not till they have passed through this first stage and become quite or almost quite adult that the striking specific differences assert themselves. These remarks also apply to the other species above mentioned with slight modifications.

11. *TURNIX TANKI*, Blyth. (Woodcut, fig. 1 *b*, p. 448.)

(1843.) *Turnix tanki* (Buchanan Hamilton), Blyth, J. As. Soc. Beng. 1843, p. 180*.

(1846.) *Turnix joudera* (Hodgson, MS.), Gray, Cat. Mamm. and Birds of Nepal, p. 129.

(1849.) *Turnix joudera*, Gray's Genera, iii. pl. 131 (♀ ad. good).

(1863.) *Turnix dussumieri*, Jerdon (nec Temminck), B. India, ii. p. 599.

In this and the two following species the scapulars are not edged with golden buff.

As maturity increases, the rufous in the upper surface of the female disappears, except from the nuchal portion, where a wide rufous collar is developed, and the back becomes uniform slaty brown, with *very faint indications of wavy transverse lines of darker colour*. The feathers of the head become barred with black and buff, and the round black spots on the sides of the breast usually become less numerous. In the male the rufous entirely disappears from the plumage of the whole upper surface, and the feathers become uniform slate-brown crossed by wavy lines of black, more distinct than in the female.

12. *TURNIX BLANFORDI*, Blyth.

Turnix maculosa, auct. (nec Temminck).

(1863.) *Turnix blanfordi*, Blyth, J. As. Soc. Beng. xxxii. p. 80.

(1871.) *Hemipodius viciarius*, Swinhoe, P. Z. S. 1871, p. 402 (♂ ad.).

(1873.) *Hemipodius chrysostomus*, Swinhoe, Ann. Mag. N. Hist. 4th series, xii. p. 375 (♀ ad.).

Hemipodius catharcus, Swinhoe, MS. (♀ imm.).

In the female the rufous in the feathers of the upper surface gradually disappears with age, except on the neck, where it concentrates and forms a wide rufous collar, and the general tone of the back becomes slaty brown *vermiculated and irregularly blotched with black*, while a few of the feathers still show faintly the whitish spots and markings of younger examples.

The name *maculosa*, which has been erroneously applied to this species by all the more recent authors, belongs in reality to the allied Australian form commonly known as *T. melanotus*, Gould. One cannot see how this mistake can have arisen, as Temminck distinctly says that his bird came from New Holland, although Vieillot, in his 'Galerie des Oiseaux,' ii. p. 51, pl. 217, states that the exact locality is somewhat doubtful. Anyone reading Temminck's original description carefully and glancing at Vieillot's plate (which is a very good one of a fully adult female) must see at once that neither refer to the Burmo-Malayan Button Quail, as Mr. Hume calls it. This latter bird must therefore be known in future by the next oldest name, *T. blanfordi*, Blyth.

13. TURNIX ALBIVENTRIS, Hume.

Turnix albiventris, Hume, Str. F. i. p. 305.

This species somewhat resembles *T. blanfordi* in having the upper parts blotched and vermiculated with black in the most adult female specimens, but the rufous in the feathers of the back is also retained, and the nuchal collar is much wider and of a deeper rufous than in the two preceding species.

The most adult male in our series is scarcely to be distinguished in plumage from old examples of *T. blanfordi*, the only apparent character being that a small amount of rufous is still intermixed in the upper surface; but this may possibly be due to its not being so old a bird, though fully adult. The difference in size is, of course, marked.

This species is found in the Nicobar and Andaman Islands.

14. *TURNIX MACULOSA* (Temm.).

(1815.) *Hemipodius maculosus*, Temminck, *Pig. et Gall.* iii. pp. 631, 757.

(1819.) *Turnix maculosus*, Stephens, *Shaw's Gen. Zool.* xi. p. 394.

(1823.) *Turnix maculatus*, Vieillot, *Encycl. Méth.* i. p. 830.

(1825.) *Turnix maculatus*, Vieillot, *Galerie des Ois.* ii. p. 51, pl. 217 (good).

(1837.) *Hemipodius melanotus*, Gould, *P. Z. S.* 1837, p. 8.

(1848.) *Hemipodius melanotus*, Gould, *B. Australia*, v. pl. 84, with text.

The younger birds of this species bear a close resemblance to those of the three last-mentioned Asiatic forms, but are of course at once distinguished by the scapulars being edged widely with buff or straw-colour. The changes in the plumage appear also to be much the same. In the female the rufous and black markings of the upper surface become rather more faint as age advances, and a wide light rufous nuchal collar is developed, while the superciliary stripe and ear-coverts become bright buff, as also the throat, but to a less degree.

The adult male, like the others in this group, has, of course, no rufous nuchal collar, but is otherwise similar in colour and markings to the female, though somewhat paler.

The reasons for discarding Mr. Gould's name *melanotus*, which has been commonly used to designate this species, have been fully explained in writing on *T. blanfordi* (see p. 467), to which the term *maculosa* has been erroneously referred by the majority of authors.

15. *TURNIX RUFESCENS*, Wallace.

(1863.) *Turnix rufescens*, Wallace, *P. Z. S.* 1863, p. 497.

? (1875.) *Turnix beccarii*, Salvadori, *Ann. Mus. Genov.* vii. p. 675.

(1882.) *Turnix rufescens*, Forbes, *Ibis*, 1882, p. 430.

The only representative of this so-called species is a type specimen which is at present before me, and was obtained by Wallace in the island of Semaio. It is not sexed, but appears to be a nearly mature male, and closely allied both to *T. saturata* of New Britain and to *T. maculosa* of Australia,

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being exactly similar to the former in the colour of the under surface, while it resembles the latter in the lighter colour of the back.

It is impossible, from this single *male* specimen, to say whether the species is distinct or not; but from the differences remarked on above, also from the locality where it was obtained, we believe that it may prove to be a distinct form; but this cannot be ascertained till adult females are obtained from the same locality.

16. *TURNIX SATURATA*, Forbes.

(1882.) *Turnix saturata*, Forbes, Ibis, 1882, p. 428.

The remarks on the plumage of the younger birds of the last species apply equally to the present, which is nearly allied, but easily distinguishable by its darker plumage and much stronger bill, and by the fact that in the *adult female there is no rufous nuchal collar*, what rufous there is in the upper plumage of the younger birds entirely disappearing in the adults of both sexes.

It may be of interest to note that one of our male specimens of this species collected by Herr Kleinschmidt in New Britian was shot together with a young chick, which is also in the National Collection. This would seem to indicate, what is probably the case, that the birds of this group are similar in their habits to the Bustard Quails of India and their allies (*T. taigoor* group) and that it is the male bird which hatches and attends to the young.

17. *TURNIX OCELLATA* (Scop.). (Plate XIV.; woodcut, fig. 1a, p. 448.)

Caille de l'Isle de Luçon, Sonnerat, N. Guinée, p. 54, pl. 23.

(1786.) *Oriolus ocellatus*, Scopoli, Del. Flor. Faun. Insub. pt. ii. p. 88.

(1788.) *Tetrao luzoniensis*, Gmelin, Syst. Nat. 13th ed. pt. ii. p. 767.

(1815.) *Hemipodius thoracicus*, Temminck, Fig. et Gall. iii. pp. 622, 755.

(1823.) *Turnix rufus*, Vieillot, 2nd ed. Nouv. Dict. d'Hist. Nat. xxxv. p. 48.

(1834.) *Ortygis ocellata*, Meyer, Nov. Act. Acad. C. L.-C. Nat. Curios. xvi. Suppl. Primum, p. 101, pl. 17.

This fine species is one of the largest members of the genus *Turnix*, and forms a group by itself, characterized by the unique coloration of the plumage and by the very long upper tail-coverts, which entirely conceal the true tail.

T. ocellata appears to have been very much confused by various authors with *T. fasciata* and other species of the *taigoor* group. *T. fasciata* occurs in the same locality, but, as already shown, belongs to the *T. taigoor* group, to which the present species is not very nearly allied, although the chin and throat in the old adult female become almost black. (See Blyth, Ibis, 1865, p. 34; and Swinhoe, Ibis, 1863, p. 398; 1865, p. 543; 1866, p. 404, &c., &c.)

Our series contains only specimens that are adult or nearly so, and consequently does not allow of my offering very exact information as to the changes in plumage in this species; but from the remains of the young plumage still visible in the breasts of some of the less mature examples, the young of both sexes would appear to have the breast buff, with spots and marks of black near the ends of the feathers.

In older examples of both sexes the throat is white spotted with black (as in the adult male), and the breast rufous, sometimes spotted with black, in males at least; the upper surface is greenish brown mixed with pale rufous, and most of the feathers of the back and scapulars are narrowly edged with whitish and a rufous nuchal collar is more or less developed. The feathers of the crown are black edged with brown, and the interorbital and superciliary stripes are whitish.

As the female becomes quite adult, the black on the chin and throat gradually increases till these parts become nearly black, and the breast becomes a fine bright uniform rufous chestnut. On the upper surface the tone becomes more uniform and the rufous nuchal collar more marked, while the white margins to the feathers of the back and scapulars disappear and the black ocelli on the wing-coverts are reduced in number and size, being smaller and fewer than in the adult male. Wing 4.2 ca.

The fully adult male differs from the female in the following points:—It is smaller (wing ca. 3·9) and not so brightly coloured, the chin and throat are white spotted with black, as in the younger examples; many of the breast-feathers have subterminal dots of black, though these have disappeared in our oldest male example, and there is no rufous nuchal collar, while the white edges of the back and scapular feathers are retained even in the most adult, and the ocelli on the wing-coverts are larger and more numerous than in the female.

In the second section of the genus *Turnix*, which contains only six species, all are distinguished by having the tarsus equal to or less than the middle toe and claw (see fig. 2, p. 448).

18. *TURNIX NIGRICOLLIS* (Gm.). (Woodcut, fig. 2 *a*, p. 448.)
(1760.) *La Caille de Madagascar* (*Coturnix madagascariensis*), Brisson, Orn. i. p. 252, pl. xxiv. fig. 2.

(1788.) *Tetrao nigrigollis*, Gmelin, Syst. Nat. pt. ii. p. 767.

(1885.) *Turnix nigrigollis*, Milne-Edwards and Grandidier, Madagascar, Ois. p. 494, pl. ccii.

MM. Milne-Edwards and Grandidier, in their 'Histoire de Madagascar, Oiseaux,' tell us that, as one would expect, this species forms no exception to the other members of the genus *Turnix*, for it is the female which is the larger and more brightly coloured bird; and they are of opinion that Hartlaub is wrong in describing the male as being the bird with the black throat and rufous shoulders. Our material is certainly not extensive, for we have only 11 specimens in the series, and, of these, three are little more than chicks. Out of the remaining eight, seven are fully adult black-throated specimens, of which four are *sexed males* and three are not sexed, while the eighth is sexed a male (young?), and is in precisely the same plumage as the one figured by Milne-Edwards and Grandidier in their work cited above.

These facts would certainly seem to prove that Hartlaub was correct with regard to the black-throated specimens being males; but I am inclined to believe that the bird

he describes as the adult female, together with the specimen figured by MM. Milne-Edwards and Grandidier as the adult male, are both only immature examples, and that the plumage in both sexes is in reality similar or almost exactly so.

Since writing the above, I have, through the kindness of Professor Newton and Mr. Büttikofer, been able to examine six additional specimens which are said to have been sexed by reliable collectors. The three lent me by Mr. Büttikofer, which were collected by J. Audébert, and are said to be an adult male and female and a young male, agree exactly with the ideas of MM. Milne-Edwards and Grandidier, in their 'Histoire de Madagascar, Oiseaux'; while the other three sent by Professor Newton (an adult male and female and an immature bird collected by Sir Edward Newton and Mr. Caldwell) show that the sexes are identical. The *male* was obtained and sexed by Sir Edward Newton. I therefore consider myself justified, from these facts, in believing that the sexes in this species *are* exactly similar, and that we find in Madagascar this ancestral species in which the plumage of the sexes has remained alike.

19. TURNIX MELANOGASTER (Gould). (Woodcut, p. 448, fig. 2 *b*.)

(1837.) *Hemipodius melanogaster*, Gould, P.Z. S. 1837, p. 7.

(1848.) *Hemipodius melanogaster*, Gould, Birds of Austr. v. pl. 81.

Of this species Mr. Gould says: "I regret that, never having seen this species in a state of nature, I am unable to render any account of its habits and economy. . . . Judging from analogy, I presume that the sexes present little or no difference in their markings. . . . in all probability the female will be found to exceed the male" (in size).

Judging from analogy and the specimens before me, I should arrive at an exactly opposite conclusion; but unfortunately not one of our series is sexed, and I can therefore only guess that the larger birds (wing 4.4) with black foreheads, chins and throats, and black breasts with terminal

white bars are the females, while the smaller ones (wing 4-4.1) with brown or greyish foreheads, white chins, and whitish breasts with subterminal transverse V-shaped black marks on each feather are the males.

But of course this is quite uncertain and cannot be decided till we are able to obtain properly sexed specimens, though I have no doubt that my theory is correct.

Mr. Ramsay, in his tabular list of Australian birds, gives the range of this species as being from Wide Bay to New South Wales.

20. *TURNIX VARIUS* (Lath.).

(1802.) *Perdix varius*, Latham, Ind. Orn. Suppl. ii. p. 283.

(1845.) *Hemipodius scintillans*, Gould, P. Z. S. pt. xiii. p. 62.

(1848.) *Hemipodius varius*, Gould, Birds of Austr. v. pl. 82, with text.

(1848.) *Hemipodius scintillans*, Gould, Birds of Austr. v. pl. 83.

Although we possess a very fair series of this species, unfortunately only a few of the specimens are either sexed or dated; yet on examination certain facts are clear enough and easily deducted. In the first place the species *H. scintillans*, described and figured by Mr. Gould from East and West Wallaby Islands of the Houtman's Abrolhos group on the west coast of Australia, is nothing more nor less than the male of *T. varius*, and what he figures and describes as *H. varius* is the female of that species.

Mr. E. P. Ramsay follows Mr. Gould and, as regards the geographical distribution of these two so-called species in his 'Tabular List of all the Australian Birds' p. 18, states that *T. scintillans* inhabits South, West, and North Australia, while *T. varius* is found from Rockingham Bay to Tasmania.

The fact is that this species is found all round Australia and in Tasmania in suitable localities, such as dry stony hills and barren sandy islands, and in spite of its wide distribution shows little or no variation in its plumage in examples of the

same sex and age, specimens from Perth and Cape York being entirely similar to those from S. Australia. Just as in the "*tanki*" group, the most adult female specimens have a distinct inclination to a rufous nuchal collar, which is somewhat developed in the *young of both sexes*, but *entirely disappears* in the *adult male*.

A male specimen of *Turnix* from New Caledonia is in the Tweeddale Collection and is closely allied to the present species, but differs in having most of the *feathers of the rump, as well as those of the upper surface, almost entirely black*, margined with whitish or buff. It is also a smaller bird than the male of *T. varius*, its wing being 3·3 instead of 3·5–3·6. I have little doubt that this belongs to a distinct species; but this cannot be ascertained until adult females have been procured.

21. TURNIX CASTANONOTA (Gould).

(1839.) *Hemipodius castanotus*, Gould, P. Z. S. 1839, p. 145.

(1848.) *Hemipodius castanotus*, Gould, Birds of Austr. v. pl. 85.

Only two specimens of this species are in the National Collection, both of which were obtained at Port Essington. One of these is a female sexed by Mr. J. B. Jukes, the collector, and no doubt the other, obtained by Capt. Chambers, is a fully adult bird of the same sex.

Having so little material to draw our conclusions from, I am of course unable to make any remarks on the plumage, but, in all probability, the male, as represented in Mr. Gould's plate, resembles the female, but is smaller and less brightly coloured, as is the case in the allied species *T. velox* and *T. pyrrhothorax*, which have also very stout bills.

Mr. Ramsay states that this bird is found at Port Darwin, Port Essington, and Cape York.

22. TURNIX PYRRHOTHORAX (Gould).

(1840.) *Hemipodius pyrrhothorax*, Gould, P. Z. S. 1840, p. 150.

(1848.) *Hemipodius pyrrhothorax*, Gould, Birds of Austr. v. pl. 86.

We have a good series of this species, which is well figured and described by Mr. Gould in the work quoted above.

The sexes are entirely alike, but the male is smaller and has the rufous chest less bright than the female.

Mr. Ramsay gives the geographical distribution of this species as extending from Cape York, Wide Bay and Richmond, and Clarence River District, to Victoria and S. Australia.

23. *TURNIX VELOX* (Gould).

(1840.) *Hemipodius velox*, Gould, P. Z. S. 1840, p. 150.

(1848.) *Hemipodius velox*, Gould, Birds of Austr. v. pl. 87.

We have again a good series of this little bird, which is also well figured and described by Mr. Gould in the above-cited work.

Like the two last-mentioned species, *T. castanonota* and *T. pyrrhothorax*, the above has a very stout bill.

The sexes are entirely alike in plumage, but the male is smaller (wing 2·8 as against 3·1 in the female), and appears, even when fully adult, to retain the light stripe down the middle of the head, and light margins to all the feathers of the neck and upper part of the back, both of which become uniform in the fully adult female.

Mr. Ramsay says this bird is found from Rockingham Bay southwards, also in Victoria, S. Australia, and Tasmania, as well as in the Swan River District.

XLIII.—*On some new Genera and Species of the Family*
Capitonidæ. By Captain G. E. SHELLEY, F.Z.S.

DURING my studies at the British Museum I have come across several species of *Capitonidæ* which appear to me to be undescribed. I have also found it necessary to provide names for some genera of African Barbets which I think should be separated from their relatives.

1. *ERYTHROBUCCO*, gen. n.

Distinguished from *Pogonorhynchus* (type *P. dubius*) by

the smooth base to the lower mandible (so different from the sulcated mandible of *P. dubius*) and by the less evident tuft of bristles on the chin.

Type *Erythrobucco rolleti*.

2. MELANOBUCCO, gen. n.

Wants the dense tuft of bristles which conceals the chin-angle in *Pogonorhynchus* and *Erythrobucco*. Differs from *Tricholæma* in wanting the hairy plumes on the breast.

Type *M. bidentatus* (Shaw).

The species to be assigned to *Melanobucco* are :—*M. bidentatus*, *M. æquatorialis*, *M. melanopterus*, *M. levaillanti*, *M. leucocephalus*, *M. albicauda*, *M. senex*, *M. leucogaster*, *M. abyssinicus*, *M. torquatus*, *M. irroratus*, *M. vieilloti*, and *M. undatus*.

One of these species is undescribed, and may be characterized as follows :—

MELANOBUCCO ÆQUATORIALIS, sp. n.

Adult male. Similar to *M. bidentatus*, but having the band on the wing much more restricted, and of a rosy colour instead of scarlet. Total length 9 inches, wing 4.1.

Hab. Iparó, in Equatorial Africa (*Emin Pasha*) ; Niam-niam country (*Bohndorff*).

Type in the British Museum.

All the remaining species, usually placed in *Pogonorhynchus*, should, in my opinion, be placed in *Tricholæma*, which, in addition to the hairy feathers on the breast, has also a yellow-spotted plumage. The following species belong to this genus :—*T. hirsutum*, *T. stigmatothorax*, *T. melanocephalum*, *T. lachrymosum*, *T. affine*, *T. leucomelan*, *T. diadematum*, *T. frontatum*.

3. HELIOBUCCO, gen. n.

The type of this genus is *H. bonapartii*, which has always been placed with *G. calrus* in the genus *Gymnobucco*. It differs, however, in its feathered crown and feathered ear-coverts.

4. STACTOLÆMA.

I think that my *Barbatula olivacea* belongs to this genus, and should be called *Stactolæma olivacea*.

5. MEZOBUCCO, gen. n.

The type of this genus is *M. duvauceli*, a species which holds an intermediate position between *Cyanops* and *Xantholæma*. The culmen does not exceed the tarsus in length, the bill is pointed, not obtuse, as in *Xantholæma*, and the genus differs from *Cyanops* in the great length of the rictal bristles, which reach beyond the tip of the bill.

6. BARBATULA.

A new species of this genus may be described as follows:—

BARBATULA CHRYSOPYGA, sp. n.

Similar to *B. bilineata*, Sundev., and, like that species, having the eyebrow and cheek-stripe white and the rump orange, but differing in the edges of the quills and wing-coverts being orange instead of sulphur-yellow. Total length 3·3 inches, wing 1·85.

Hab. Gold Coast.

This form has been confounded by many writers with *B. leucolæma* and *B. subsulphurea*.

7. SMILORHIS.

SMILORHIS KILIMENSIS, sp. n.

Adult female. Similar to *S. leucotis*, but distinguished by having the lower back and rump white, contrasting with the mantle and upper part of the back. Total length 7 inches, wing 3·65.

Hab. Kilimanjaro district of E. Africa (*Hunter*).

Type in British Museum.

XLIV.—*On the Birds of Barbados.*

By Colonel HENRY W. FEILDEN, C.M.Z.S., F.G.S.

THE most noticeable feature in connection with the ornithology of the island of Barbados is the paucity of resident

species of birds; but there are several reasons which well account for this deficiency, and these may be considered under the headings of its geological structure, its geographical position, and the paucity of swamps and marshes, the almost total destruction of the natural forest-growth, which covered the island when first settled by Europeans in the beginning of the seventeenth century, and the wonderfully high state of cultivation which is the marked feature of the island at the present time.

Barbados is separated from the other islands of the Lesser Antilles by a great oceanic depression; soundings of from 1000 to 1500 fathoms being shown on the Admiralty charts between it and the islands of St. Vincent and St. Lucia, the nearest of the Lesser Antilles, which lie about one hundred miles to the westward. Between Barbados and the island of Tobago, to the southward, which latter has in all probability been connected with the mainland of South America since the introduction of its existing fauna and flora, we find a depth of over 1000 fathoms; to the eastward of Barbados the floor of the ocean rapidly sinks into the profound depths of the Atlantic. Though Barbados is not separated from the chain of the Lesser Antilles or the mainland of South America by any great expanse of ocean, yet I think the most cursory examination of its geological structure will satisfy the observer that it can lay claim to being a truly oceanic island, in the sense of its never having formed part of a continent since the introduction of its present, comparatively speaking, meagre fauna. A singular feature in the geological structure of Barbados is that, although it attains to a height of over 1100 feet, no true volcanic rocks, so far as I am aware, protrude themselves through the exposed strata of the island, which are sedimentary stratified rocks. I do not, of course, include in the sedimentary rocks the coral capping which covers more than six sevenths of the superficial area of Barbados, or about ninety-one thousand acres, whilst the area from which the coral has been denuded by subaerial causes, and where the basement rocks are exposed, occupies only about sixteen thousand acres. This denuded area is known

by the name of the "Scotland District," owing to its hilly and peaked character, and offers a most striking contrast to the gentle slopes and terraces of the coral-covered area, which is the part of the island generally seen by the casual visitor to its shores.

The strata which form the basement series of Barbados are extremely contorted and have been greatly disturbed; they consist of a variety of rocks, siliceous sandstones, calcareous sandstones, clays containing selenite, clays impregnated with mineral oil, and at some points veins of bituminous coal. Their precise age has not been accurately determined, but they are probably late Eocene or Miocene, and point to correlation with those of Trinidad, and consequently at one period of time to a connection with the South-American continent. It can hardly be doubted that these basement-rocks, or "Scotland Series," were formed either as estuarine or shallow-sea deposits, and in close contiguity to some great land-area. Resting unconformably on the "Scotland Series" are vast deposits of oceanic ooze, built up, in some cases almost entirely, from the tests of Rhizopods. The modern coral cap of the island has been built up step by step upon these thalassic oozes as they emerged at intervals from the ocean. It would therefore appear that between the period of the deposition of the rocks that form the basement-series of the island there must have been a submergence of not less than a thousand fathoms to have brought them into harmony with the surrounding floor of the ocean, and to have admitted of the deposition of the beds of deep-sea ooze which now rest upon them. The modern coral-coated island of Barbados dates back no further in time than the period when the elevatory process brought the deep-sea deposits sufficiently near the surface to admit of the reef-builders commencing work. The deep water that surrounds Barbados is proof that it has had no continental connection since it emerged as a coral-reef from the ocean. I believe that the examination of the flora and fauna of Barbados will show their comparatively recent origin. So far as I can judge, the mammals, reptiles, and land-molluscs owe their introduction either to

ocean-currents, accidental occurrences, or to the direct agency of man, and a review of its avifauna does not point to a different conclusion. After careful investigation, I am unable to admit more than fifteen birds as residents, and in the case of one, *Tyrannus rostratus*, I am open to correction, though I saw it during six consecutive months. These residents are:—*Dendræca capitalis*, *Certhiola barbadensis*, *Euethia bicolor*, *Loxigilla barbadensis*, *Quiscalus fortirostris*, *Elainea martinica*, *Tyrannus rostratus*, *Eulampis holosericeus*, *Orthorhynchus cristatus*, *Zenaida amabilis*, *Chamæpelina passerina*, *Ardea virescens*, *Gallinula galeata*, *Fulica americana*, and *Puffinus auduboni*. In addition I have notes of sixty-seven other species, a large number of which, especially amongst the family of the Charadriidæ, are regular birds of passage. Others, again, are merely accidental wanderers, such as *Machetes pugnax*, *Vanellus vulgaris*, *Ægialitis hiaticula*, and *Hydrochelidon leucoptera*, the occurrence of which in Barbados is as remarkable as that of American species in Europe.

My stay in Barbados was one year, during which time I was absent from the island over four months on tours of inspection throughout the West Indies. The Catalogue I have drawn up, modest as it is in regard to numbers, represents a large amount of observations, which are chiefly due to my excellent friends Dr. C. J. Manning, M.D., and Mr. J. P. Massiah, Stipendiary Magistrate of Bridgetown, Barbados. I may say that whatever value these notes possess is chiefly due to the assistance afforded me by these two gentlemen. I am likewise greatly indebted to the Rev. G. Duncan Gittens, M.A., Rector of St. Lucy's parish, and to Mr. Herbert Hart, of Fairfield, St. Philip's.

1. MARGAROPS DENSIROSTRIS (Vieill.). Thrush.

I failed to find this species or any bird that might be entitled to the name of Thrush resident in the island, though Hughes, writing in 1750, gives the impression that such might have been the case at that date. I made every inquiry in regard to "Thrushes;" and though birds answering to their description are seen at intervals, yet I am inclined to

think they are only individuals passing through at the periods of migration. Dr. C. J. Manning obtained a fine specimen of *Margarops densirostris* in his garden at Bagatelle on the 2nd of March, 1889, which he kindly forwarded to me. It proved to be a male. It is not likely that so large and striking-looking a bird could be a resident in Barbados without the fact being known.

2. *PARULA AMERICANA* (Linn.).

Mr. Herbert Hart, of Fairfield, St. Philip, gave me a mounted specimen of this species, which he had shot in his garden in the month of June, a very late date for this migratory bird to have remained in Barbados. Gosse gives the 20th of April as the latest date for its stay in Jamaica. On the 4th of November, 1888, I recognized one in an oleander-bush, within two feet of me, in a garden at Hastings, and subsequently I met with several others at various spots in the island.

3. *DENDRÆCA CAPITALIS* (Lawr.). Yellow-bird.

This species is peculiar to Barbados. The bright yellow plumage of the male makes it a very conspicuous object. It is extremely common throughout the island from the higher elevations to the shore-line. It is often to be seen hopping among the stalks of the growing maize and other plants, though it is equally arboreal in its habits, and addicted to the shade of the broad-leaved sea-side grape (*Coccoloba*). Its food is chiefly insects. There was a pair of these pretty little birds that made their headquarters all the year through in a tree close to my dwelling, and I have seen one fly down and attack a large spider on the ground, which took it some time to kill. Wishing to see the species of spider, I stepped out and took it up; the little Yellow-bird only retreated a few paces, and the instant I dropped the spider, returned and snapped it up. This bird has a short and melodious song, of no great strength or compass, but in the mornings, shortly after sunrise, every grove and clump of trees resounds with their pleasing warble. The nest is a compactly built structure of grass and roots, with a few feathers interspersed,

dome-shaped, depth inside 3 inches, entrance $1\frac{1}{2}$ inch. The newly-hatched young are bright yellow-tinted.

4. *DENDROCA STRIATA* (Forst.). Swamp Sparrow.

I first met with and obtained this species amongst the mangrove bushes bordering Valentia swamp on the 20th October 1888. I was attracted by its sharp note; the coloured lad with me recognized it as the "Swamp Sparrow;" it is therefore in all probability an annual visitor. I saw two or three more at the same place later on in the year, but was unable to procure another example. When alarmed they hide in the thickest bush; the note is a monotonous "chip, chip, chip." The specimen obtained is either in winter plumage or in that of the young bird.

5. *SIURUS NÆVUS* (Bodd.).

From its small size and plain plumage this species may be more abundant than I suppose, as it ranges in winter throughout the West Indies. I only noted two examples in Barbados, one at Brandon, the residence of Mr. Edmund Taylor, on the 5th of November, 1888, and another which I procured at Chancery Lane on the 24th of the same month.

6. *SETOPHAGA RUTICILLA* (Linn.). Goldfinch.

An annual migrant, arriving in Barbados towards the middle of September, where it is known by the name of Goldfinch and Christmas-bird. I observed individuals remaining as late as February. The bright plumage of the male bird makes it a very conspicuous object as it flits about from branch to branch amid the green foliage.

7. *CERTHIOLA BARBADENSIS*, Baird. Sugar-bird.

The Barbados *Certhiola* is very abundant throughout the island, and when the great American aloe is in bloom may constantly be seen creeping and searching about its yellow blossoms, which appear equally attractive to the Humming-birds. It is also very partial to the moringa (*Moringa pterygo-sperma*) when in flower. It has a metallic note, which sounds to me as "zie, zie, zie," rapidly repeated; this it utters when flying as well as when perched in the trees; it

flies high and settles on the topmost branches of mahogany, manchineel, and tamarind trees.

8. *PROGNE DOMINICENSIS* (Gmel.).

Schomburgk, in his 'History of Barbados' (p. 681), includes this species as a visitor to the island under the name of "The Large Swallow" (*Hirundo dominicensis*, Linn.)." As this bird is abundant and resident in the islands of Grenada and St. Vincent, I see no reason to doubt the correctness of Sir Richard Schomburgk's observation that it has been observed in Barbados.

9. *HIRUNDO ERYTHROGASTRA* (Bodd.). Swallow.

An annual and abundant visitor, arriving in the end of August or beginning of September, and some remaining till February; they haunt the meadows near the shore. On the 10th of September I observed them at Chancery Lane flying by scores, both old and young. I have also many notes of having seen them in numbers in other parts of the island as late as December.

10. *VIREO CALIDRIS* (Linn.).

Dr. Manning gave me a specimen shot in a garden near Hastings on the 17th September, 1888, and I obtained another on the 15th October from the same locality. Mr. W. B. Richardson likewise procured it in Barbados during the winter of 1885-86*. I do not consider this bird resident in the island, but merely an autumnal and winter visitant.

11. *PYRANGA RUBRA* (Linn.).

Mr. C. B. Cory has recorded this species from Barbados, a specimen from that island being in the United States National Museum.

12. *LOXIGILLA BARBADENSIS*, Cory. Sparrow.

Mr. Cory has separated the Barbados form of *Loxigilla* from *Loxigilla noctis* (Linn.): *vide* Auk, iii. p. 382 (1886). Resident, and one of the most common species of bird in the island, being even more tame and impudent in its conduct than an English city-bred Sparrow; it is a constant atten-

* *Cf.* Cory, Ibis, 1886, p. 472.

dant at the breakfast-table, entering by the open windows, perching on the backs of chairs and sideboards, and levying toll from the eatables placed on the table. It has a rather sweet but monotonous song as well as a chirp. It makes its nest, from March to June, fully exposed in the branches of trees, a large domed structure, composed of grass and roots, lined with finer material and a few feathers. The eggs are three in number, white, blotched and speckled with reddish brown. The old birds feed their young by regurgitation, putting their bills into the mouths of their nestlings.

13. *EUETHIA BICOLOR* (Linn.). Cane Sparrow.

Common throughout the island. It is very noticeable when the guinea-grass is in flower, small parties are constantly flying from stem to stem, the birds clinging to them and feeding on the ripe seeds. Throughout the year it is found spread over the island, particularly on the sour-grass pastures. It has a peculiar flight, just before alighting it quivers its wings with a rapid motion, the wings vibrating like those of a Humming-bird. The nest is generally placed in low bushes, though I have found it at a considerable height in a tree. It is made of grass and fine roots, and is domed; the number of eggs three; they are white, with minute brown spots.

14. *AGELÆUS ICTEROCEPHALUS* (Linn.).

Dr. Manning procured a specimen of this species in the autumn of 1887, which he kindly placed in my collection. It must be a very rare and accidental visitor to the island.

15. *DOLICHONYX ORYZIVORUS* (Linn.).

Dr. Manning shot a female of this species in October 1887; Mr. Herbert Hart has another in his collection of Barbados birds, shot some years ago. I came across a flock of seven at Chancery Lane on the 13th of October, 1888, out of which I shot two specimens; both proved to be males. They were quite tame, and when disturbed tried to hide themselves in some coarse sedge growing round a marshy spot. I

received another example, a male shot at Græme-Hall swamp on the 26th October, 1888. An example of this species has been procured by Mr. J. W. Wells in the island of Grenada. Mr. Cory records it from the Bahamas, Cuba, Jamaica, and Grenada. I expect that it will be found to be an annual visitor to Barbados during the autumnal migration.

16. *QUISCALUS PORTIROSTRIS*, Lawr. Blackbird.

The Barbados Blackbird is found in large numbers throughout the island. It breeds in April, May, June, and July, sometimes in colonies. A favourite site for the nest, which is a large roughly built structure of grass and roots, is on the slender branches of the mahogany. The eggs, usually three in number, are very handsomely blotched and streaked with dark umber-brown on a greenish-lilac ground. Old and young flock together in autumn and visit the fields and savannahs in companies like our British Starling (*Sturnus vulgaris*). They do considerable damage to the planter by eating and destroying grain, but they also consume large numbers of insects, following the cattle in the fields for that purpose. The singular use these birds make of their tails has been remarked on by Ligon, writing nearly two centuries and a half ago, who thus refers to it:—"One thing I observe in these birds, which I never saw in any but them, and that is, when they flie, they put their train into severall postures; one while they keep it straight, as other birds; sometimes they turn it edge-waies, as the tail of a fish, and by and by put it three square, with the covering feather a top, and the sides downward." In the adult bird the iris is straw-yellow, in the young white. When in full breeding-plumage both sexes are alike, black glossed with purple on the upper parts, the female less brilliant than the male; the young are likewise black. Towards autumn the plumage in many cases assumes a decided chocolate-brown colour, but this is owing to a loss of colouring in the old feathers; they moult in August, September, and October; specimens procured at that time distinctly show the new black feathers underneath the sun-dried and abraded old ones.

17. *ELAINIA MARTINICA* (Linn.). Peewhittler.

Mr. Cory has lately bestowed the specific name of *barbadosensis* on the form found in Barbados; I have, however, retained the older designation. This is a common bird throughout the island wherever groves of trees are to be met with. It is the first bird that heralds the approach of day, and just before dawn its cry of "pee-wee, pee-wee" is to be heard from tree and copse. It is a lively little creature, darting from tree to tree and perching on the ends of the branches, erecting its crest and uttering its singular notes, but extremely timid and shy if it finds itself observed.

18. *TYRANNUS ROSTRATUS*, Sclater. Rainbird.

I think that I may reasonably include this bird as one of the resident species, as I have seen it in the island during every month from December to July inclusive. On the 7th June, 1888, we obtained a nest with four eggs incubated, which was placed on the frond of a high palm-tree in the garden of Erdiston House. The nest was a slight fabric, composed of dried grass and roots. The eggs are very handsome, creamy white, with chocolate blotches at the larger end.

19. *CHORDEILES VIRGINIANUS* (Sw.). Goatsucker.

Probably an annual visitor during the autumn, as a bird either of this or of some closely allied species is well known to the sportsmen of the island. I am indebted to Mr. Herbert Hart for a male specimen of *C. virginianus*, which he obtained in St. Philip's parish on the 29th September, 1887.

20. *EULAMPIS HOLOSERICUS* (Linn.). Doctor-bird.

Is extremely common and not at all shy. I did not obtain its nest. There is very little difference in the plumage of the sexes, but I fancy the female has a somewhat longer bill than the male. The trivial name of Doctor-bird, so frequently applied to Humming-birds in the West-Indian Islands, takes its origin, I believe, from the apothecaries having usually been the taxidermists throughout the West Indies, so that the negroes finding a sale for these birds with them, conceived the idea that they were used for medicinal purposes.

21. *ORTHORHYNCHUS CRISTATUS* (Linn.). Doctor-bird.

Very abundant and excessively fearless; I have seen them humming round a blossom in the bush when within a yard of my face. It has a shrill note, frequently uttered when flitting from blossom to blossom. It very often perches on the telephone wires, seated quite upright in the position of a Kingfisher. The females strike me as having longer bills than the males. I found a nest with two young ones in it on the 30th of October; it was fastened to the edge of a leaf of the prickly pear; the similarity of this nest to the fruit growing on the same bush was so complete that when within a few inches I could hardly believe that it was not the fruit; my attention was attracted in the first instance by seeing the female apparently crouching on the top of a fruit. In the young the beak is yellow, short, triangular, and with a wide gape, showing its affinity to *Cypselus*. Eggs two, pure white.

Obs. I have frequently heard of other species of Humming-birds being seen in Barbados, but I have only obtained or observed myself the above-mentioned two species. *Trochilus colubris* has been so accurately described to me by a resident as having been observed by him in Barbados, that I have little doubt of its having occurred there.

22. *COC CYGUS AMERICANUS* (Linn.).

A single example, a male, was shot at Græme-Hall swamp on the 6th of October, 1888. I am indebted to Mr. Herbert Hart for this specimen, which was forwarded to me in the flesh; it was very plump and in beautiful condition; its stomach contained remains of insects.

23. *CERYLE ALCYON* (Linn.). Loggerhead Mango-bird.

An annual visitor in considerable numbers during the autumn and winter. It frequents the shore, perching in the trees that edge the beach. I have noticed as many as a dozen individuals during the course of an afternoon's walk in the month of October. At Valentia swamp, where they were common in winter, they seemed to be in pairs, and pursued their antics in the air, gamboling with one another

and frequently uttering a harsh note, "churr, churr." I have been assured that individuals remain in Barbados throughout the year, especially in the vicinity of Consetts Bay and Joc River; but the nest has not been discovered, neither was I able to verify the fact of this species remaining the entire twelve months in Barbados.

24. *STRIX FLAMMEA* (Wilson).

It is with considerable diffidence that I place the name of this Owl in the list, but as Schomburgk includes it without any doubt or hesitation, I do not like to ignore his statement. This Owl is very common in Grenada and in St. Vincent, the latter island being not one hundred miles distant from Barbados; its occurrence is therefore not improbable. Personally I found no trace of any Owl in the island.

25. *PANDION HALIAETUS* (Linn.). Osprey.

An irregular and somewhat rare visitor in the fall. Several appeared during the month of October 1887. One of these is preserved in the collection of Dr. Manning; another, a female, shot about the same time, is in the possession of Mr. Herbert Hart. An adult male, shot at Græme-Hall swamp on the 28th September, 1888, was forwarded to me in the flesh by Dr. Manning.

26. *CIRCUS HUDSONICUS* (Linn.).

I have the skin of an immature bird from the collection of Dr. Manning; it was obtained by that gentleman in St. Philip's parish during September 1886. This species had not previously been recorded from Barbados, and, according to Cory, has hitherto only been obtained in the West Indies in Cuba and the Bahamas.

Obs. Schomburgk gives *Buteo borealis*, Swainson, a place in his list as one of the indigenous birds of Barbados. This is an error; no member of the Falconidae is resident in that island, nor can have been for over a hundred years, otherwise Hughes would certainly have referred to the circumstance in his 'Natural History of Barbados.' But a reference to Ligon's 'History' (p. 60) shows clearly that in his day, when the greater part of the island was clothed in natural forest, a

species of Buzzard was indigenous. This may have been *Buteo latissimus* (Wils.), at the present time numerous and resident in St. Vincent. Ligon writes :—"The birds of this place (Barbados) (setting two aside) are hardly worth the pains of describing: yet in order, as I did the Beasts, I will set them down. The biggest is a direct Bussard, but somewhat lesse than our grey Bussards in *England*, somewhat swifter of wing; and the only good they do is, sometimes to kill the Rats."

27. *FALCO PEREGRINUS*, Tunstall.

I am indebted to Mr. E. N. Armstrong, of the 'Crane' Hotel, for a fine female example of this species, which was shot near his residence on the windward side of the island, 17th November, 1888.

Obs. *Falco columbarius*, Linn., is included by Schomburgk in his list as one of the indigenous birds of Barbados, but this is an error. It is, in all probability, an occasional visitor to the island, and a Hawk which one of our party saw at Chancery Lane on the 3rd of November, 1888, probably, from his description, belonged to this species. Mr. Wells has recorded it as an autumnal visitor to the island of Grenada, arriving along with the *Limicolæ*. On the 27th of October, 1888, whilst driving in Christchurch parish, a small Hawk dashed past the horse's head; it was, I think, undoubtedly *Falco sparverius*.

28. *ZENaida AMABILIS*, Bp. Wood Dove.

This beautiful species is not uncommon in places where it obtains protection, being numerous in the grounds of Codrington College, where it nests on the fronds of the lofty palmistes. I have often seen it in the gardens about Bridgetown, especially in those of Government House and Bishops-court. During my stay in Barbados I neither fired at nor handled one of these birds, and I rather regret now that I did not obtain a specimen for complete identification. This species nests in cliffs as well as in trees. The Hon. Mr. H. King informed me that he had taken the young from the most precipitous side of Chalky Mount.

29. *CHAMÆPELIA PASSERINA* (Linn.). Ground Dove.

Resident and very numerous, especially on the sand-dunes which border some part of the coast. I have heard of as many as fifty couples having been shot in a day by two guns. Manchineel bushes are very often selected as nesting-sites; the nest itself, composed of a few grass-stems and roots, is so frail that the two white eggs may often be seen through the structure. This bird frequently drops her eggs on the ground.

Obs. Numida melagris, Linn. Guinea-fowl. Common in a domesticated state, but does not run wild as in the island of Barbuda.

30. *ORTYX VIRGINIANUS* (Linn.). Quail.

Is a very rare visitor to Barbados. Dr. Manning has a specimen shot at Bankhall, in St. Michael's parish, during September 1886; the same gentleman saw another in St. James's parish during September 1887, but did not succeed in shooting it. This species is included by Schomburgk in his list.

31. *SQUATAROLA HELVETICA* (Linn.). White-tailed Plover; Loggerhead; Rock Plover.

This is rather a rare autumnal visitant, in some years none alighting; it generally arrives after the Golden Plover, towards the close of the shooting-season; it hardly ever settles on the pastures or by the decoy-ponds, but on the rocky shore, where it consorts with Ringed Plovers, Turnstones, and Sanderlings. I procured a specimen on the 22nd of September, 1888.

32. *CHARADRIUS DOMINICUS*, Müll. Golden Plover.

Stragglers arrive as early as July and the beginning of August, but the main flights come with the first heavy weather after the 27th of August, and long experience and observation proves that this date is kept year after year with wonderful accuracy. The course of all the migratory Charadriidæ across Barbados in the autumn is from the north-west to south-east, and if the wind blows from south-east the birds are brought down to the island, for it appears to be a tolerably well established

observation that birds prefer migrating with a "beam" wind. A shift of wind from the north-east, with squally weather to the south-east, is ardently longed for by the Barbados sportsmen towards the end of August, as this forces the migratory hosts to alight instead of passing over at a great height, as they are seen to do when the wind is from the north-east. The first arrivals of this species are invariably black-breasted birds, showing that the old birds precede the young, and the first comers are nearly all males. The young birds without black on the breast appear about the 12th of September, and continue to pass till the end of October, sometimes stragglers are as late as November. Even in the most favourable seasons, only a fraction of the immense flights that pass over the island ever alight; but if, attracted by the green land and "mock-birds" pegged out near the shooter's hut, they deviate from their line of flight, they are doomed, for so well do the sportsmen imitate the call of the Golden Plover, and so irresistible is the charm, that the birds come down to it, and in spite of gaps in their ranks, they wheel round and dash past the shooter again and again till all are killed.

33. *ÆGIALITIS SEMIPALMATA* (Bp.). Ring-neck.

This bird arrives in August and remains till the end of November; it is one of the last of the Charadriidæ to quit the island. It does not appear in large flocks, but consorts with *Tringa minutilla*, *Tringa fuscicollis*, and *Ereunetes pusillus*. It also affects the shore-line, running about among the sea-ware cast up by the waves.

34. *ÆGIALITIS HIATICULA* (Linn.).

This must be a very rare visitor; I only obtained one example, which was shot at Chancery Lane on the 10th September, 1888. Mr. Massiah at once recognized its note as different from that of *Æ. semipalmata*, which attracted his attention, and he succeeded in shooting it. I submitted this specimen to Mr. Seebohm, who remarks, "It certainly is not *Charadrius semipalmatus*. Both the length of wing and of bill are too large, and the webs between the toes are much too

small. Wing from carpal joint 5·1 inches. It may be a large *Charadrius hiaticula*, which varies from 4·8 to 5·2, or it may be a small *Char. hiaticula major*, which varies from 5 to 5·5 inches. In the latter case it was bred in the British Islands and flew across the Atlantic, which is very improbable; in the former case it was most likely bred in Cumberland Sound."

85. *STREPSILAS INTERPRES* (Linn.). Sandy Plover.

Arrives in August, and consorts with the Sanderlings about the sandy beaches and rocky shores. I obtained four on the 22nd of August in full breeding-plumage, and subsequently procured many others. The first arrivals were the adults, the immature birds arriving in September.

86. *RECURVIROSTRA AMERICANA* (Gmel.).

Decidedly a very rare straggler to the island. Mr. Massiah informed me that he shot one at Valentia swamp in the autumn of 1880, and Mr. I. Tinling shot another on the 1st of October, 1888, at Finney's Hill, St. Philip's parish.

87. *HIMANTOPUS NIGRICOLLIS* (Vieill.).

A rare visitor, though seldom a year passes without one being shot at Græme-Hall swamp. Mr. I. Tinling informed me that he saw one shot there in the autumn of 1887, and another on the 17th of September, 1888.

88. *GALLINAGO WILSONI* (Temm.). The Snipe.

A regular autumnal visitor, sometimes in considerable numbers. Mr. Massiah has shot ten couple in a day at Chancery Lane; I have shot them in the same locality during the months of September, October, and November. There are very few spots in Barbados at all suitable for Snipe.

89. *MACRORHAMPHUS GRISEUS* (Gmel.). Duck-leg; Duck-bill.

Though a regular, is somewhat of a rare visitor, appearing along with flights of Yellow-legs (*Totanus flavipes*) in August and September. It is, however, sufficiently numerous to be given a local name by the Barbadian sportsmen. I have a specimen, a male, shot by Dr. Manning at Bagatelle on the

24th of August, 1888, and two others shot by Mr. Massiah at Chancery Lane on the following day. I have seen several other examples shot during 1888 at the latter place.

40. *MICROPALAMA HIMANTOPUS* (Bp.). Cue.

Arrives with the Yellow-legs in July, and continues to pass all through August, and generally into the middle of September, when the flights cease, but stragglers drop in at intervals till October. This bird is easily attracted by the imitation of its call-note, and the flocks are very compact, so that at times many are brought down at one discharge of a gun. They feed on the edges of freshwater swamps, and do not alight on the dry meadows nor on the sea-beach. The flights only remain on the island for a few hours.

41. *EREUNETES PUSILLUS* (Linn.). Grass Nit.

Arrives in flocks along with *Tringa minutilla* and *Tringa fuscicollis* in the middle of July, and remains on the island till the end of October.

42. *TRINGA MINUTILLA* (Vieill.). Cockroach Nit.

Arrives in flocks about the middle of July, remaining till the end of October. I have frequently seen them flying in companies of thirty or forty. They are most confiding little birds, and alight almost at the feet of the gunners when called by the whistle. They are considered delicate eating, and sad havoc is at times made in their ranks by a discharge of small shot. The note may be described as resembling "crete-crete," frequently repeated.

43. *TRINGA MACULATA* (Vieill.). Chirp; October Chirp.

The Pectoral Sandpiper commences to arrive in July and August, increasing in its numbers till October, when they usually appear in immense flights; a few stragglers pass over as late as the early part of November. This bird, on its arrival in the island, frequents flooded and marshy spots, where the grass is short, likewise feeding on the ploughed lands. The Barbadian sportsmen, many of whom have the most discriminating ear for the notes of the various migratory birds, consider that there is a difference between the

notes of the smaller and earlier arrivals, which they designate "Chirps," and those of the later arrivals, which are called "October Chirps"; these are, as a rule, larger and finer-looking birds, but I think it is merely that with this species the immature precede the adult birds on the southward migration. Mr. Massiah has drawn my attention to a habit of this bird, which I have not previously seen noticed; when reaching the ground, and alighting from passage, all the individuals in the flight throw themselves on the ground, with their breasts touching it, in the position of a brooding hen or pigeon on eggs. Has this habit anything to do with its trivial name of Pectoral Sandpiper?

44. *TRINGA FUSCICOLLIS* (Vieill.). Grey Nit.

Arrives in July and continues on the island till the end of November, receiving additions to its numbers. It flies in company with *E. pusillus* and *T. minutilla*, and I have brought all three down at one shot. They are considered good eating, and numbers are shot when larger birds are not on the wing. No amount of shooting at them will deter these birds from returning to the edges of the same small swamps to feed, until all are killed.

45. *TRINGA CANUTUS*, Linn.

This is included by Schomburgk in his list of Barbados birds, and he also ascribes to it the local name of "Mopus," which, however, is not recognized at the present day by the Barbados gunners. It is evidently a very rare straggler to the island. I have a single example shot at Chancery Lane on the 6th of September, 1888, and I did not hear of any others being procured during that season.

46. *MACHETES PUGNAX* (Linn.).

Writing in 1848, Schomburgk includes this species in his list, and remarks:—"The Ruff Sand Piper is a British bird; and I have been informed that it is the first time that this species has been recorded as having been found on the other side of the Atlantic. Mr. Bishop sent it to me among other migrating birds, and observed that its name was not known, from which I infer that its occurrence in Barbados is a

singular circumstance." I am indebted to Mr. H. Alleyne, of The Ridge, Barbados, for presenting me with a specimen of the Ruff in full breeding-plumage, which was shot at Græme-Hall swamp in 1878 by Mr. H. Simpson, of Bridgetown.

47. *CALIDRIS ARENARIA* (Linn.). Sandy Snipe.

Arrives in August and remains in Barbados till the end of the year. I only met with it on the sandy shores of bays in small parties of four or five. Specimens I procured in August were in complete winter plumage.

48. *LIMOSA HÆMASTICA* (Linn.). Godwit.

An annual visitor, in some years far more numerous than in others, generally arriving in October. Mr. Massiah informed me that he has a note that on the 10th of October, 1878, this species passed over the island in large and continuous flocks the whole day. I have an example in my collection, a male, shot at Græme-Hall swamp by Mr. H. Hart on the 6th of October, 1888.

49. *VANELLUS VULGARIS*, Bechst.

Dr. C. J. Manning has in his aviary a live Lapwing, which was shot at and injured in one wing on the 24th of December, 1886, in the island of Barbados. This bird had been eighteen months in confinement when I saw it, and appeared to be quite healthy. I have already recorded this remarkable occurrence in the 'Zoologist' for 1888, p. 301.

50. *SYMPHEMIA SEMIPALMATA* (Gmel.). White-tailed Curlew.

This is an annual, but not by any means an abundant, visitor. I obtained two examples in August, and another on the 3rd of September, 1888, at Chancery Lane.

51. *TOTANUS MELANOLEUCUS*, Gmel. Pika.

This bird arrives as early as May; I have a note of three having been seen at Græme-Hall swamp on the 5th of May, 1888 (*fide* C. Manning), but the main flights occur during September and October, arrivals continuing in diminished

numbers till the middle of November. This is one of the most highly esteemed for the table of the migratory Waders. It appears in comparatively small parties, a flock of twelve or fifteen arriving together is considered a large flight.

52. *TOTANUS FLAVIPES*, Gmel. Longlegs.

Arrives in flocks about the 15th of July, though stragglers put in an earlier appearance. I shot an example on the 4th of July at Græme-Hall swamp. The passage lasts till the middle of September, only odd birds appearing after that date. The Yellowshanks is the most numerous of the migratory Waders, and generally forms the chief feature in the bag of the Barbadian sportsman. The flocks do not, however, remain long on the island, but pass on after a few hours' stay.

53. *RHYACOPHILUS SOLITARIUS* (Wils.). Black-back.

This species is hardly reckoned a game bird by the Barbadian sportsmen, and is not generally put up with the bunches of dead fowl, as it is supposed to spoil them. It has a strong and disagreeable odour, very noticeable when skinning a specimen. It never flies in flocks, but I have seen them collected in some numbers in wet meadows, when, if disturbed, they fly off in pairs or independently. This bird arrives in July and remains till the end of November.

54. *TOTANUS MACULARIUS* (Linn.). Wag; Spotted Wag.

This species is very common in Barbados, arriving in large numbers in July and August. I shot an immature bird on the 4th of July, 1888, and I have been assured on good authority that examples may be met with in the island during every month of the year, especially about the streams in the Scotland District. It resorts on arrival to any small piece of swampy ground, and also lies out in dry yam-fields near swampy spots; it is likewise a sea-shore feeder, for I have often flushed it from the coral-reef at low water, and small parties, both in the adult and immature dress, may be seen on the sandy beaches following up the retreating waves, like Sanderlings.

55. *BARTRAMIA LONGICAUDA* (Bechst.). Cotton-tree Plover.

Generally arrives about the middle of August, and a few remain till March. On arrival the flocks break up and scatter over the grass-lands, cornfields, yam and sweet-potatoe patches, feeding on grasshoppers, beetles, and other insects. They are not attracted by the "mock birds," neither do they respond to the whistle of the sportsman. They run as fast as a Guinea-fowl, and generally rise well out of shot. Their note is peculiarly pretty, a soft liquid cry. The local name given to this bird took its origin from its habit of chiefly frequenting the cotton-fields, when that plant was cultivated in Barbados. It is recorded from the island of Grenada by Mr. Wells, and Mr. Lawrence remarks (Proc. U.S. Nat. Mus. p. 628, 1886) that this is an addition to the fauna of the Lesser Antilles. But apparently Schomburgk's list of the birds of Barbados, where this species is included, had been overlooked.

56. *TRINGITES RUFESCENS* (Vieill.).

The Buff-breasted Sandpiper is of sufficiently rare occurrence in Barbados not to have received a local name. Dr. Manning gave me an example which he shot in the autumn of 1887, and I have another, a male, which I procured at Chancery Lane on the 6th of October, 1888. I have amongst the series in my collection a specimen from Barbados, collected by the late Lt.-Colonel Wedderburn, of the 42nd Highlanders (*circa* 1847). Mr. Massiah's description of this bird to me was quite sufficient to identify it even before I saw a specimen; he likened it to a miniature Bartram's Sandpiper, with peculiar markings under the wings, and he considered that individuals appeared annually on autumn migration in Barbados. Cory has hitherto only described it as "accidental" in the West Indies, from the island of Cuba.

57. *NUMENIUS HUDSONICUS* (Lath.). Crook-billed Curlew; Woodcock.

It arrives early in August, flying very often in pairs, but chiefly towards the middle of September. It is by no means so abundant a visitor as the next species, *N. borealis*. I ob-

tained, however, several examples during the autumn of 1888.

58. *NUMENIUS BOREALIS* (Forst.). Chittering Curlew.

Arrives about the end of August, but passes more frequently in September. The first I obtained in 1888 was on the 5th of September, when immense numbers passed over the island, though comparatively few alighted. The same day great flights of Golden Plover (*Charadrius dominicus*) and Longlegs (*Totanus flavipes*) arrived; I saw over a hundred of each of these species shot at one stand by a single gun.

Obs. I did not observe *N. longirostris*, nor does it appear to be known to the sportsmen of Barbados, who would at once recognize it, if it occurred, by its great length of bill.

59. *ARDEA HERODIAS*, Linn. Grey Gaulding.

This fine species is a regular autumn visitor, arriving in October and November in parties, sometimes consisting of from ten to twelve individuals. I shot a fine example at Chancery Lane on the 24th of October, 1888; the outspread wings measured seventy inches from tip to tip. Dr. Manning, Mr. B. H. Belgrave, and other gentlemen sent me specimens during the autumn of 1888.

60. *ARDEA EGRETTE*, Gmel. White Gaulding.

A rare visitor. I procured one at Græme-Hall swamp on the 4th of July, 1888, an adult female, in beautiful plumage. It was alone at the time.

61. *ARDEA VIRESCENS*, Linn. Gaulding.

Resident, and tolerably abundant in those places where any protection is afforded. In the beautiful grounds of Codrington College it breeds freely, nesting on tall trees; it is there quite fearless, and the old birds come down from their nests to the ornamental water in front of the building. The nest is a frail structure of twigs; the number of eggs two or three, of a pale green colour. This species is common at Valentia swamp, where I have disturbed as many as a dozen from a single tree at one time; but in most parts of the island it is persecuted at all seasons, and consequently

has become very wary. I found the breeding-season to be in May, June, and July.

62. *POZZANA CAROLINA* (Linn.). Two-penny Chick.

Though this Rail now-a-days goes by the name of Two-penny Chick, the bird described by Hughes (1750) under the same appellation was undoubtedly a Grebe. This Rail is a regular visitor to Barbados during the months of October and November. When flushed from a swamp and driven to seek refuge in a dry place, it has a habit of running into holes or poking its head under cover, and in this situation I have seen it captured by hand.

63. *GALLINULA GALEATA* (Licht.). Red-seal Coot.

Resident. A few still lingered at Græme-Hall swamp in 1888, from whence I obtained a nest with seven eggs in the month of July, when I fully identified the bird. It used to be plentiful at several spots in the island, particularly so at Valentia swamp and at a pond on the Three-Houses estate, but it has been exterminated, I think, in those places.

64. *IONORNIS MARTINICA* (Linn.).

This Purple Gallinule must be a rare and accidental visitor. I have a specimen shot by Dr. Manning in the autumn of 1887, and Lieutenant Venour, of The West-India Regiment, informed me that he saw another captured in the same month and year by some boys with a dog, in the swamp below St. Ann's Fort.

65. *FULICA AMERICANA*, Gmel. White-seal Coot.

Resident. A few still lingered at Græme-Hall swamp as late as 1888, whence I procured an example in August. I am afraid it was one of the last of its race. Mr. A. M. McLean told me that twenty-five years ago he could remember both the Waterhen and Coot being abundant in the swamp. Mr. Spencer, the owner at that time, would not allow them to be molested, and it was no uncommon occurrence to see twenty or thirty of both species swimming together on the open-water spaces in the swamp. The cutting down of the bush around Valentia swamp a few years

ago banished them from there. The bird must soon be extinct as a resident in the island.

66. *BERNICLA BRENTA* (Pallas).

I think I am fully justified in including the Brent Goose as having certainly visited Barbados on one occasion. My authority is Mr. J. P. Massiah, J.P., who shot the bird in question at Chancery Lane on the 15th of November, 1876. His accurate description leaves no doubt on my mind that the bird was of this species. During an experience of over thirty years, Mr. Massiah has never seen but this one Wild Goose in Barbados, nor could I hear from any other source of Wild Geese having been seen or obtained, except in this single instance.

67. *DENDROCYGNA VIDUATA* (Linn.).

A flock of twenty-seven of these beautiful Ducks appeared in Græme-Hall swamp in September 1887; one that was slightly wounded was taken alive to Dr. Manning, who placed it in his aviary; a year subsequently I saw it alive and well. Cory records this species in the West Indies as only from Cuba, and there introduced.

68. *QUERQUEDULA DISCORS* (Linn.). Blue-winged Teal.

An annual visitor in considerable numbers, generally arriving about the first week in October, and continuing to do so at intervals till Christmas. I shot several examples.

69. *SPATULA CLYPEATA* (Linn.). Spoonbill.

An annual visitor in small numbers during the months of October and November. I have examples procured at Chancery Lane.

70. *ERISMATURA RUBIDA* (Wils.).

A male shot in the swamp at Chancery Lane on the 13th of September, 1888, by Mr. W. Pearson is now in my collection. Another was obtained by Mr. I. Tinling at the same place in the fall of 1887. It is a rare straggler to the island. The diving powers of this Duck are remarkable. The beautiful shade of cobalt-blue which suffuses the upper

mandible of the adult male bird fades very soon after death. The stomach of the bird shot by Mr. Pearson was full of grass-seeds.

71. *FREGATA AQUILA* (Linn.). Cobbler.

The local name given I have heard applied to the Frigate-bird in Barbados. It is included by Schomburgk in his list, and I have myself seen it floating over the island and passing at a great height. Mr. Massiah shot one some years ago at Chancery Lane.

72. *PELECANUS FUSCUS* (Linn.). Pelecan.

An irregular visitor, but sometimes, as in 1886 and 1887, appearing in flocks of hundreds. I saw two or three in the island during 1888. Lieutenant R. E. Stuart, R.A., fired at one near Needham's Point on the 27th of October, 1888. The Père du Tertre, in his 'Natural History of the Antilles' (vol. ii. p. 271), mentions that a great mortality occurred amongst these birds in the year 1656 during the month of September, and that the shores of the islands of St. Lucia, St. Vincent, Bequia, and the Grenadines were strewn with their dead bodies.

73. { *SULA SULA* (Linn.).
 { *SULA PISCATOR* (Linn.). Booby.

I have seen Boobies outside Carlisle Bay, but as I was unable to obtain a specimen for identification, I cannot say to which of these species they belonged; probably both occur. Schomburgk includes both of them in his list. The shores of the island do not seem to attract many sea-birds, I hardly ever saw one close in-shore; but the fishermen told me that when out flying-fish catching, they are often surrounded by crowds of Gulls, Boobies, Frigates, and Petrels, when from ten to twenty miles from Barbados. Any resident interested in adding to our knowledge of the ornithology of Barbados should instruct the fishermen to bring in specimens of the birds they meet with, and I am sure the list would be considerably increased by so doing, or, better still, if he had the fortitude, he should accompany the fishermen in their boats.

74. PHAETON AETHEREUS (Linn.).

I have seen Tropic-birds when entering and leaving Carlisle Bay on board the mail steamers; not having obtained an example I cannot state that this is the species with absolute certainty, but as it is the one which resides and breeds in the island of Grenada, in all probability it extends its flight to Barbadian waters. A Tropic-bird was captured after a gale in 1877 near Chancery Lane, but was not preserved.

75. LARUS ATRICILLA, Linn.

An occasional visitor. I have a specimen shot by Dr. Manning in the summer of 1887, and another shot on the 24th of July, 1888, was brought to me in the flesh. As this bird is numerous, and breeds around the island of Grenada, it is somewhat singular that they so seldom visit Barbados, but this island apparently offers few attractions to sea-birds.

76. STERNA ANGLICA, Montagu.

I have a specimen of this Tern shot by Mr. Chase at Græme-Hall swamp on the 6th of October, 1888, and another procured at the same place on the following day.

77. STERNA ANTILLARUM (Less.).

Obtained at Chancery Lane by Mr. Massiah on the 8th of September, 1888, and another by Dr. Manning on the 17th of October.

78. HYDROCHELIDON LEUCOPTERA (Schinz).

I obtained at Chancery Lane on the 24th of October, 1888, an immature example of a Black Tern, which I took to be *H. lariformis* (Linn.), but on submitting it to Mr. Howard Saunders, he came to the conclusion that it is a White-winged Black Tern. This species is of very rare occurrence in North America, only one having been hitherto obtained on that continent; it is an addition to the fauna of the West Indies.

79. HYDROCHELIDON HYBRIDA (Pallas).

In the fourth edition of Yarrell's 'British Birds' (vol. iii. p. 529), the editor, Mr. Howard Saunders, states that a mounted specimen, marked as obtained in Barbados, is in

the British Museum, presented by Sir R. Schomburgk, who, however, did not include it in his list of the birds of that island.

80. *STERCORARIUS CREPIDATUS* (Gmel.).

An example of this species was brought to me alive on the 10th of July, 1888. I recorded the circumstance in 'The Zoologist' for 1888, p. 350.

81. *PUFFINUS AUDUBONI*, Finsch.

A short notice of the breeding of this species has already been contributed to this Journal (*vide* 'The Ibis,' 1888, p. 60). It may be considered as a resident species, for on visiting the bird-rock in October several were captured in holes. It bred in considerable numbers this year, and the eggs were deeply incubated by the end of March.

82. *PODICEPS DOMINICUS* (Lath.).

Schomburgk includes this species in his list of the Birds of Barbados. Undoubtedly one species of Grebe, if not more, visits the island in autumn and winter. I did not procure a specimen, but the description given me of a bird seen at Chancery Lane in 1887 undoubtedly referred to a Grebe.

XLV.—*Further Notes on the Birds of the Canary Islands* *.

By E. G. MEADE-WALDO.

(Plates XV., XVI.)

In the middle of February of this year I paid another visit to the Island of Fuerteventura, meeting by chance in Las Palmas a kindred spirit, Dr. Percy Rendall, of Gambia, who accompanied me. A fortnight later Canon Tristram, whom I had not expected to see, arrived. My principal objects in this visit were to observe the habits of the Chat which I had procured the previous year, to have another good look at the Cream-coloured Courser and Houbara Bustard on their breeding-grounds, and to get living specimens of as many species as I could. This I failed in, being too early for young

* See above, p. 1.

of most species, or finding the young too small to rear by hand. The day that I landed I saw two pairs of the *Pratincola*, and watched carefully for it all the time I was in the island. I came to the conclusion that it is thinly distributed from the mountains to the sea-beach, and that it lives only where there is some vegetation. Perhaps its favourite haunts are the small barrancos on the north slope of the mountains; but I procured two pairs on the sea-beach, and the cock bird of a pair, which were feeding young ones, on a lava-stream. It is a singularly quiet little bird, hardly putting itself out when its young ones are being handled, flying tamely from bush-top to bush-top, and occasionally uttering a low *chut*, *chut*. I found two nests, each containing two large young. The nests were placed on the ground under stones or, rather, in one instance, under a rock. They are exceedingly early breeders, as by the middle of February the young were full-grown. After I left the island I got a clutch of three eggs, evidently of this species, among a number of eggs sent from the island; they are very round and glossy, with a very thick shell, of the colour of Blackbird's eggs but with the spots very faint, or like intensely bright-coloured eggs of *Pratincola rubicola*.

I propose to describe this bird as a new species, and to name it

PRATINCOLA DACOTIÆ, sp. nov. (Plate XV.)

P. ♂. Supra brunneo-nigra, fusco limbata: cauda brunnea, rectricibus extimis albo limbatis: loris et capitis lateribus nigris, linea supraoculari et postoculari alba, gula et thorace albis: pectoris cinctura pallide castanea, abdomine albido: hypochondriis et crisso albis, secundariis majoribus interioribus albis, reliquis albo marginatis: rostro et pedibus nigris.

♀. Supra brunnea: gula, thorace et abdomine albidis, cinctura castanea pectoris pæne obsoleta, aliter mari similis.

Long. tot. 4·9, alæ 2·5, caudæ 2·3, rostr. ·62, tars. ·9.

Hab. Ins. Fuerteventura, Mauritanice Dacos.

In the ten specimens of this bird that I have in my collection there is no variation. I saw, however, one hen that was feeding young ones, and which I would not shoot, with a very

distinct chestnut band across the upper breast. I looked her over well, within two yards.

I think I got on a little better this year at finding the nests of *Cursorius gallicus*, but they certainly are very difficult to discover. This is caused by the perfectly open country, the bird being of the same colour as the ground and never flying or betraying uneasiness, and the eggs being exactly like the stones that cover the plain. There is really no nest, the bigger stones being just moved away to make room for the bird to sit on the two eggs. I had promised Mr. Sharpe to get him a pair, with the eggs and ground on which the eggs had been laid, for a case in the Natural History Museum. Two or three days after our arrival a goatherd said he knew of one, and offered to show it to us. It seemed very wonderful how he could walk about three miles over ground, without any land-mark to speak of, to two eggs that he had seen a few days before and thought no more about, never dreaming any one could want them ; however, he took us straight to them. This man did not know, until I spoke to him, that I was after eggs of any kind. I shot the hen, and proceeded to mark out the ground for removing, when the man, wondering what on earth we were at, walked up and put his foot on the two eggs !! This was singularly annoying, and we were eight days before we found another nest, and had almost begun to despair of ever getting one. However, eight days after this misfortune I got a nest, eggs, and parent, and also a pair of beautiful little young ; the young are much easier to find than the eggs. The hen only remains at the nest whilst she is sitting, the cocks either go about in little parties or mix with birds which are not breeding. When the young are hatched, however, both parents care for them, the male being rather shier than the hen. While running about, it is easy to tell the cock from the hen ; he carries himself much higher and seems to have a bigger head ; when shot this difference vanishes. The males breed in their first year, as two I shot were in partly spotted plumage ; nevertheless many do not breed at all, as I saw flocks of from fifteen to forty birds whilst others had

eggs or small young. In flocks they were very wild, and reminded one generally of Lapwings; they skim a great deal with outstretched motionless wings. Their voice is a low *qua qua* when they have young.

When shot the Cream-coloured Courser ejects a lot of brownish fluid out of its mouth, which soils its feathers very much. I fancy this is natural and voluntary. Where they most frequent this fluid may be seen in patches, and a pair of young ones that I kept alive for three days ejected some of it when quite undisturbed and apparently at their ease. This little pair I tried to rear, and think I should have done so, had it not been that they wanted almost ceaseless attention, and I could not spare the time. They ate flies, small snails, and cochineal-bugs, also small pieces of lizard. They ran at a great rate, holding themselves very upright, with their wings stretched out wide. I, greatly against my inclination, converted them into skins. I think they were about five days' old.

The Houbara Bustard resembles the Courser in that the hen only remains at the nest, and the cock comes afterwards and helps to rear the young. Last year I thought it was the exception for the cock to accompany the hen with her young ones, and was much surprised to see one do so; but I am assured by several natives that they *always* do this. The hen Bustard is, however, very tame at the nest, and runs about shamming lameness. The eggs of both Courser and Bustard vary greatly in size and colour; the Courser seems never to lay more than two, the Bustard three as often as two, and the natives tell me they occasionally find five. The newly hatched Houbara Bustard is a lovely little thing, chocolate-brown colour, with patches of cream-colour.

I was surprised to find the Kestrel of Fuerteventura quite different from that of the other islands; it is much smaller, the females being equal in size to the Canarian and Tenerife males. It is, moreover, exceedingly light-coloured, the female of the other islands being very dark. The tail of the adult Fuerteventura hen has less blue than that of the Tenerife hen, and has small brownish bars instead of black. The cock is very pale and pure in colour.

The Linnet of Fuerteventura (*Linota cannabina*) also differs greatly from that of the other islands. While those of Canary, Tenerife, Gomera, La Palma, and, as Canon Tristram writes to me, of Lanzerote, are peculiarly brilliant in colour, the Linnet of Fuerteventura is very pale, wanting in nearly every instance any rose-colour whatever. Only in one out of ten breeding males that I skinned is there a *touch* of colour, and in that it is very pale.

The Tit (*Parus ultramarinus*) differs from *Parus teneriffæ* in being much smaller and paler blue in colour, and in having a broad white margin to the greater wing-coverts, all the secondaries being tipped with white, and in having the white space on the forehead wider. In the large series of *Parus teneriffæ* that I have, and in the hundreds that I have observed in Tenerife within a yard or two, I have never seen one with white-edged wing-coverts. The Fuerteventura Tit is a distinctly different form to the *Parus teneriffæ*.

Flocks of Common Starlings frequented the cactus-fields in the villages, where they lived on the cochineal-bug.

Sylvia melanocephala was common in the tamarisks which grew in some of the barrancos. Their nests were usually placed at some height from the ground, as if to avoid a sudden flood; there had been one or two very heavy rains early this spring. The eggs were of quite a different type from those laid in Tenerife, being white, sparsely dotted with two shades of olive. Three nests contained three eggs or three young, in one instance only one young one, and two contained one incubated egg each, so that they do not seem very prolific. *Sylvia conspicillata* lays full clutches of from four to six eggs.

Two pairs of Plovers that frequented a part of the plain where there is a salt-stream puzzled me. They were like *Charadrius hiaticula*, but were much larger, and appeared to have longer tails, and had a very different voice. They were very wild, and rose with a very powerful flight, circling round and whistling. I never could get within shot, but had good looks at them through my glasses; the beak was orange with a black tip, and the legs were greenish. From seeing them

many times in the same place, and from their behaviour, I am inclined to think that they contemplated breeding there. All birds were later this year than last in breeding, with, perhaps, the exception of the Chat and the Thick-knee. The Sand Grouse (*Pterocles arenarius*) had only commenced to lay March 16th, and it was the exception to find an egg. They were still in flocks, a pair being occasionally seen together. The cock when making up to the hen spreads his tail, and also sweeps it on the ground, like a cock Pigeon, at the same time making a purring noise. In this and in drinking they somewhat resemble the Pigeons, but they drink as if they did not know how to do it, putting their heads into the water, and after holding it in for a second or two, tilting it up with the mouth open for a drop or two to run down by chance. The large, soft, and odorous intestines are very Grouse-like, and the scent emitted from them resembles that of *Lagopus scoticus*. They fill their crops with creeping trefoil morning and evening, and also eat large quantities of a small *Mesembryanthemum*, called by the natives "cosco." The Houbara is also very fond of it. It is dried, stacked, and made into "Gafio" by the inhabitants of the island. I have tasted it: it tastes something between ashes and sand. Both the Sand Grouse and the Houbara Bustard are great eaters of salt.

I only saw one specimen of the sand-coloured Shrike this year, and that was one that Canon Tristram shot. It proved that they retain the sandy plumage after the first moult, as his bird is an old male, and I am sure that those I saw last year were adult. My young sand-coloured bird, however, moulted in England into a pure grey-backed white-breasted *Lanius algeriensis*.

I was but little on the sea-coast this year, but picked up a dead Gannet, apparently adult, but with a black tail. I saw two or three old Gannets with black tails flying off the coast, and a young one that looked like *Sula bassana*. I saw nothing of the Black Oyster-catcher (*Hæmatopus capensis*), but a boy who brought some eggs and a few skins to Tenerife for Don Ramon Gomez had five specimens of it; he said they

were breeding when he shot them. He also brought a female Golden Oriole (*Oriolus galbula*), a Bee-eater (*Merops apiaster*) and a Common Redstart (*Ruticilla phœnicurus*). I myself procured in Fuerteventura the White Wagtail (*Motacilla alba*), the Snipe (*Gallinago cælestis*), and the Peewit (*Vanellus cristatus*). Last year I saw Bee-eaters in flocks. *Cypselus pallidus* is abundant, but I did not see *C. unicolor*, either this year or last. The Song Thrush was not uncommon in the cactus-fields, feeding on the cochineal-bug, like the Starling.

Early in April I went over to La Palma, accompanied by Canon Tristram, sailing across from Orotava in about thirty hours. We went in a singularly filthy little schooner, but we had it all to ourselves. Our trip was all too short, but it was most enjoyable. It astonished me to find so much difference in the birds from those of Tenerife and Gomera, both these islands being almost always in sight, one about fifty and the other thirty miles distant. There is a great deal of wood on the N.E. of La Palma, large stretches of laurel-forests intersected by deep barrancos, in which the til-tree flourishes. Above is the evergreen pine-forest, dreadfully hacked about and ruined, splendid trees cut down and rotting, it being impossible to get them away; very many most splendid pines, however, still remain. The southern side, on which is the famous crater, has no laurel, but a good deal of scattered pine-forest, with here and there some good tracts. The first day proved to me that my surmise of last year with regard to *Columba laurivora* was correct, for at a spring where some viñatigo trees were growing we saw several. These Pigeons, though coming into the trees to feed, settled about in the scrub on the mountain-sides or on the ledges of precipices, where ferns and rough herbage grew. The sight of my first *Columba laurivora* in La Palma was very satisfactory, for a German collector had been over in the island a week previously, and had told me that he had neither seen nor procured any Pigeons, and believed that only *Columba livia* was found there. *C. laurivora* has much the same habits as in Gomera, but is scarcer and more distributed; it keeps to the

almost perpendicular slopes covered with scrub, and it is especially fond of the ledges in the steep sides of the barrancos, where ferns grow. On these ledges it nests; it was, however, only just thinking of breeding in the end of April. The native sportsmen say that when the cherries are ripe the "Rabiles" come down to them, and that then they shoot numbers. This Pigeon has a very peculiar walk, marching along with a long swinging gait, raising its tail and bowing its head at every step; it can, however, run quickly, like a Partridge. A fine old male that I have in my aviary has given me many opportunities of studying its actions, and I have had many wild birds walking about quite close to me. My bird was secured with a shot in his head and another in his intestines, from both of which he quickly recovered, but remained almost senseless, and had to be crammed for three weeks; he is now in perfect health and fairly tame, but won't touch his natural food, and prefers wheat and hempseed to anything; he eats large quantities of green rape. The principal food of these Pigeons in La Palma is the fruit of the til-tree and the viñatigo.

I heard and saw plenty of *Columba bollii*; they frequented the higher mountains, as in Gomera, and the larger tracts of forest. I shot two fine males, just to identify them for certain, as a man had told us they had a ring round their necks; he meant the copper-coloured feathers on each side of the neck. Although the native sportsmen tell me that they shoot a great many more *Columba laurivora* than *C. bollii*, I suspect there are really many more of the latter, there being so much more ground suited to their habits.

The first day, besides solving the Pigeon question, we procured a very interesting form of Chaffinch. Canon Tristram shot the first two examples, and I soon afterwards shot two more. They differed from *Fringilla tintillon* in the green on the rump being entirely wanting, the blue slate-colour extending over the whole of the back and being of a slightly lighter shade. The lower breast and abdomen, instead of being buff, is pure white, and the green on the wing-coverts is wanting. This bird, of which we obtained some twenty

specimens, was very common and more generally distributed than *Fringilla tintillon*, being found from about 1500 feet right through the chestnut-woods, laurel-woods, and into the pine-forests. I could distinguish a difference in its call-note and also in the song of the male, but it is very difficult to put in writing. *Fringilla tintillon* says *chēē-wut chee-weet*, the Palma bird *che-wēēt che-wit*. I wrote this down at the time, so I think it is right. The song is decidedly different, but I cannot attempt to put it into words. The female of this Chaffinch is much lighter coloured, with much less green on the back than *F. tintillon* *.

The day following I went out alone, and after shooting several of the new Chaffinch and some Robins, which were of the pale colour of the Gomera Robin, but had the colour on the breast less extended, I had the luck to fall in with a beautiful Tit, quite different from *Parus teneriffæ*. I heard its voice first, and at once thought it was something new, and after some trouble, for it was in exceedingly thick laurels on an almost perpendicular barranco-side, I shot it, and picked up a Tit like *Parus teneriffæ*, only larger, and with the whole of the underparts *white*. On comparing it with *Parus teneriffæ* I find it has a considerably longer tail and longer tarsi, and invariably white tips to its wing-coverts, but less white on the wing-coverts than the Fuerteventura Tit. The young of *Parus teneriffæ* in *first* plumage has buff tips to its wing-coverts and no white on the head, the cheeks and forehead being yellow, the black on the throat and neck being hardly discernible; the back, instead of being blue, is *green*, as in *Parus cæruleus*. The first and last Palma Tits I killed were the only two I saw in the laurel-woods. I never saw any, or heard them, with these exceptions out of the pines, and I

* [This Chaffinch has been described by Canon Tristram (Ann. & Mag. N. H. ser. 6, iii. p. 489) as *Fringilla palmæ*, and by Dr. A. König (J. f. O. 1889, p. 182) as *Fringilla cærulescens*. Dr. A. König has also separated the Robin of Teneriffe (*cf.* Meade-Waldo, *suprà*, p. 2, and *infra*, p. 516) as *Erithacus superbus* (J. f. O. 1889, p. 183). The number of the Journ. f. Ornith. in which these names are given is dated April 1889, but does not appear to have been issued until August 1889. We believe, therefore, that Canon Tristram's name for the *Fringilla* has priority.—Ed.]

think there is no doubt but that the pines are their home: they are common enough in the pine-forests. I looked carefully about all villages, gardens, chestnut-woods, and in all such places as *Parus teneriffæ* frequents, but saw none. They had bred very early, and had young on the wing on April 16th, even up at an elevation of 5000 feet. At the present time, June 22nd, *Parus teneriffæ* had only just laid or is laying in the pines of Tenerife, in the valleys, however, the young have been on the wing some time. So, at similar elevations, the Palma Tit had bred two months earlier than the Tenerife Tit—not in one instance only, for I saw three broods of young flying. Three or four seemed the number of young in each instance, and *Parus teneriffæ* is much less prolific than our little Blue Tit, as I find five to be its full clutch, and four eggs are as frequently laid as five, and in the high mountains three only are not uncommon. The Palma Tit I consider to be a good new species, and propose to call it

PARUS PALMENSIS. (Plate XVI.)

Parus palmensis, Meade-Waldo, Ann. & Mag. N. H. ser. 6, iii. p. 490.

P. ♂. Par. teneriffæ similis, sed differt pectore et abdomine pure albis, nec flavis, sine linea nigra; statura majore; cauda et tarsi longioribus.

♀ mari similis.

Long. tot. 5 poll., alæ 2·45, caudæ 2·3, tarsi ·85–·9 (caudæ *P. teneriffæ* 2·1, tarsi ·7–·75).

Hab. The Pine-forests of the Island of Palma.

The Goldcrest is abundant in La Palma, and is the same as the Tenerife and Gomera *Regulus*. Canon Tristram tells me he considers it different from *Regulus cristatus*, but I have no *R. cristatus* to compare with it out here. When in England last summer I was unable to find any appreciable differences. The nest and eggs are identical with *R. cristatus*, and placed either in tree-heath or pine, but only four or five eggs are laid. In a large number of nests I have never found more than five, often four, and sometimes only three; these were the full clutches, the birds in each instance having com-



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menced to sit. Both the Rock Sparrow and the Chaffinch were numerous, the latter swarming everywhere. When no other bird was to be seen, *Phylloscopus fortunatus*, which here appears to have dark legs, was sure to be in sight, from the Retama on the Cumbre to the sea-shore. The Canary was in great numbers and in very large flocks at a high elevation, although in the valleys, and even up to 4000 feet, they were breeding and had young on the wing.

The Blackcap (*Sylvia atricapilla*) is common, as in all the western islands, and the black-throated melanistic variety (*S. heinekeni*) is not at all uncommon in the *Caldera*; this is curious, as it does not seem to be found anywhere else. The inhabitants value them highly, asking five dollars each for caged birds. The Spectacled Warbler (*S. conspicillata*) and the Sardinian Black-headed Warbler (*S. melanocephala*) were generally distributed, the latter breeding at 5000 feet. Berthelot's Pipit, although to be seen in almost every locality, was apparently much scarcer than in the other islands that I have visited. The Common Bunting, the Linnet, which had a red breast, as in the other western islands, and the Goldfinch were all fairly numerous.

Quails were calling in every field, but, strange to say, there is no Partridge in the island. They have been introduced several times from Gomera, where they swarm, but they do not thrive and soon die out.

There is a very large extent of cumbre, which looks admirably adapted to *Caccabis petrosa*. We did not come across the Great Spotted Woodpecker (*Picus major*), and we were a good deal in the pines, of which there is a great extent. It may easily be there, as we had not much time to look, but all I asked were ignorant of either the name "Peto" or "Carpintero," the names by which it is known here in Tenerife.

The Raven is common, especially on the south-east side, and although I knew that the Chough (*Pyrrhocorax graculus*) was found in La Palma, I had never expected to see this bird so numerous. It is exceedingly common from the sea to the bre, and in flocks, like our own Rook at home. It is very

tame, but it seems occasionally to suffer at the hands of the inhabitants, as I saw it hung as a scarecrow in the newly planted potatoe-fields. They perch freely among the pines, and breed in the rocky sides of the barrancos; the nest is usually placed in the top of a cave. I took two eggs out of a nest, in which were also two newly hatched young, in a little cave at the very bottom of the Caldera. I was carried across the stream on the shoulders of one of our guides, and standing on them was able to reach the nest, the old ones swearing at me all the time from a distance of a few yards. It seems almost incredible that this bird should not have extended its range to the other islands. When on the Cumbre, with a sea of clouds below us, the mountain-tops of Gomera and Tenerife looked a mere step across, and as the Chough would go, would be only some twenty-five miles distant. They looked so close to us that we were at first uncertain whether they were not the other ends of La Palma.

The Chough has not spread to Gomera or Tenerife, and it will seem equally strange if the Kite and the *Neophron*, both common in the latter islands, have not extended to Palma. We saw neither of these birds during our visit, although continually on the look out; and I was especially keen to see them, as on asking about them of the people they none of them recognized the name of Milano or Guirre, but all knew the Common Buzzard, *Aquililla*. One or two who had been in Fuerteventura knew the *Neophron*, which is there very common, and a few who had been in Tenerife knew the Kite, but they agreed that they had not seen it in La Palma. Our ten days' trip was far too short a time to give more than a glance at the birds of this island, but it was most enjoyable, notwithstanding certain drawbacks in the shape of most filthy quarters on one occasion. If I had seen nothing else, finding *Columba laurivora* repaid me, to say nothing of procuring my living specimen, for which I have tried so long. The Chaffinch and Tit, too, are most interesting additions to the Canarian avifauna. Everything in La Palma was earlier than in Tenerife. On April 11th we got ripe peaches; they were the exception, but the main crop was on the point of

ripening. And I think the Tit breeding at a similar elevation two months earlier than in Tenerife points to a different climate as well as to a different bird. The Chaffinch, also, was building a month earlier.

In Tenerife I have recently come across many migrants, some regular and some accidental. Among the regular migrants I may mention the Land-Rail; it is decidedly rare, but is known to many by the name of "Rey de Codornices." The Sky Lark (*Alauda arvensis*) is not rare in winter on the Laguna plains, and is distinguished as "Alondra" from the summer visitor, "Calandra" (*Calandrella minor*). The Desert Short-toed Lark, the Peewit, and the Starling are regular visitors in flocks. The Song Thrush swarmed in the mountains this last winter, but the migratory Blackbirds did not seem to get here, as there was apparently only the usual number of these birds. I have never seen Thrushes lower than about 2000 feet.

At Laguna, Don Anatael Cabrera, who is much interested in the birds of this island, showed me, skinned and stuffed by himself, specimens of the Short-eared Owl (*Asio accipitrinus*), the Roller (*Coracias garrula*) (this last is not very uncommon at migration-time), the Black Redstart (*Ruticilla titys*), the Tree Pipit (*Anthus trivialis*), the Wood Warbler (*Phylloscopus sibilatrix*), the Calandra Lark, the Woodchat Shrike, and the Pine Wheatear (*Saxicola isabellina*). I saw flocks of Dotterels (*Eudromias morinellus*) one day close to the road just outside Laguna, and had a good look at them, and the same day I saw some Ruffs. I had shot a Ruff at Orotava a few days previously out of a small flock. I had a good look at a Honey Buzzard (*Pernis apivorus*), and was quite certain as to the species. In February a small flock of Pochards (*Fuligula ferina*) frequented the tanks near the Botanical Gardens, three of which were shot. I have one that was shot by Mr. Nash, the chaplain, as it flew over the "Azotéa." The Swifts have not behaved this year as they did last. I saw none until Christmas Day, and then only four (*Cypselus unicolor*); after that they were common, and on February 9th I have a note of "*Cypselus unicolor* in large flocks screaming." But the strange thing is that *Cypselus pallidus* never came at

all, or at least only a very few stragglers. They are not breeding in their breeding-places, and only an odd one is to be seen occasionally among the hosts of *C. unicolor*. Many people have noticed this same thing to me; I do not know if it is only confined to this part of the island, but I saw *C. pallidus* in flocks in La Palma. Perhaps the unusually long period of dark gloomy weather has sent them somewhere where there is more sun.

The Cuckoo seems to miss this island. I only saw one this spring; it was being chased by some small birds (*Anthus bertheloti*), as at home, and was in the red-coloured plumage.

I obtained my first nest of *Fringilla tintillon* on May 16th this year, but it was a week or more before they had begun to lay as a rule. Three eggs are the usual clutch, though four are often laid, and also very frequently only two. I am much struck with the small number of eggs laid by many birds here. I have never seen more than three eggs in a Blackbird's nest, very often only two, and frequently one. *Phylloscopus rufus* lays four eggs, occasionally five, often only three. The Tit (*Parus teneriffæ*) lays the same number; the Robin generally three, often only two, occasionally four or five. The egg of the Robin is very richly marked and large, and is as different from the egg of our Robin as the bird itself is. The Goldcrests (*Regulus cristatus*) lay but five eggs, often only four; the egg is exactly like our bird's, but I often find a double-yolked one. The Kite (*Milvus regalis*) and the Buzzard (*Buteo vulgaris*) are prolific enough, for I knew two pairs of Kites which reared *four* young ones and two pairs of Buzzards which had three.

The Chimney Swallow (*Hirundo rustica*) does not seem to breed here. I saw a pair or two about until the middle of May, haunting the same places day after day, but they disappeared. Two pairs of Ospreys bred near Orotava this spring; one pair each side of the town. I have seen several Peregrines (*Falco* —?), and from their small size I should be inclined to think they belong to the small southern form. I saw one the other day within ten yards, and watched him for some time; he had no red on the nape of his neck, and

his breast was bluish white, so he was not *F. barbarus*. I have seen no signs of their breeding here. Some natives, when I drew attention to this bird, which was very tame, said it was a "Coruja," Owl!! They call the Sparrowhawk "Falcon," not "Gavilár," which is the name it is usually known by. I procured a specimen of Leach's Petrel (*Oceanodroma leucorhoa*); I think it has not been recorded from here before. I also got a beautiful little White-breasted Petrel with grey back, forked tail, and long thin tarsi, with yellow webs to its feet (*Pelagodroma marina*)! Bulwer's Petrel (*Bulweria columbina*) breeds commonly along the cliffs; there are two places, not very far from each other, to the east of Orotava. I kept some alive for a short time, because they would not fly away. If thrown up they either fell like stones, or glided away and came into violent collision with the first wall or fig-tree that came in their way. They were all for hiding themselves anywhere, and I used to find them in my boots. Their bill is as useful as a third leg, they lift themselves up by it. They breed under the stones and in the holes at the foot of the cliffs. The Great Shearwater (*Puffinus kuhli*) breeds in the holes in the caves.

The Quails begin to arrive very early, the first migratory Quails I found this year being found at the end of January. In February numbers arrive, and they begin to breed then, near the coast. There are two races, those which spend the winter being smaller, darker, and more brightly coloured than the migrants. They also have brilliant yellow legs, while those that arrive in spring have mostly flesh-coloured legs. It is probably food and soil that make the Quail which winters here different from the spring visitors, for they winter at a high elevation and feed mostly on the fruit of a small shrub, called here "Trovisco," and are, as a rule, only to be found where it grows.

I have this year carefully observed the Teydean Blue Chaffinch (*Fringilla teydea*). I had a tent placed in a pine-forest much frequented by them, and spent two or three days a week for several weeks right in the midst of them. They are a most entertaining bird, so full of life and so tame that they can

be observed exceedingly easily. A pair used to come into my tent and pick up canary-seed at my feet, and would look out for me to release a butterfly if I held one up in my fingers. They are great hawkers after butterflies, and hunt the cracks in the bark of the pines for moths. They usually commence at the top of a tree and hunt the branches from the trunk to the tip, descending to the next branch when they have reached the tip of one. On reaching the point of a bough where there are cones, they hang and twist about to see if there are any open sufficiently for them to reach the seeds; they of course never attempt to open a cone, which would be impossible. A great deal of their time is spent on the ground, looking for insects and pine-seeds, they also are very fond of the seeds of the forget-me-not. They pair early in the spring, but the first nest I found this year, that of a very old pair of birds, was only a quarter built on June 8th; on June 28th the hen had commenced to sit, perhaps for three or four days. This nest, as well as others I found afterwards, contained but two eggs. I have little hesitation in saying that two only are laid, for out of eleven nests seen and seven taken, all contained two eggs, and in each case the hen was sitting. In three instances only one egg was fertile, and in two cases I found the eggs incubated for different periods, as if the hen had commenced to sit as soon as she had laid her first eggs. While sitting the hen *does not quit the nest to mate*, so that before the time she hatches the nest looks as if it had young ones ready to fly. The nest taken on June 28th was far in advance of all others found, for I got no more until July 1th, and on July 8th one pair had not laid. The young of the previous year breed in their immature plumage, and I saw one cock paired with a hen that was much bluer than himself. The nest is built of a great variety of materials—a few pine-needles, dead twigs of tree heath, moss and lichen: it is lined with feathers, goat's hair, and, in one instance, dried grass. The whole of the outside is welded together with spiders' webs, so that some nests appear quite white. The extreme end of a branch is usually chosen, but I found one nest placed against the trunk of a tree, and one halfway along a thick hori-

zontal bough. One nest was lined with Rock-Dove's feathers, and two with those of the Red Kite. The eggs are like those of *Fringilla tintillon*, but larger and brighter in colour. I have two in which the blue of the ground-colour is collected in a zone round the middle of the egg. But small and pale-coloured eggs of *Fringilla teydea* would be indistinguishable from large and bright-coloured eggs of *F. tintillon*. The eggs of both species fade rapidly after being taken. The hen apparently alone builds the nest. I never saw a cock carry any materials. While building and collecting materials she is usually unattended by the cock, and on the few occasions that I have seen him accompany her, she has generally chased him away; he appears, however, to fix on the site for the nest.

As this bird has been almost entirely left to itself until the last year or two, it is a wonder that it is not much more plentiful than it is, not that it is rare in a few favoured localities. It certainly lays only two eggs, and probably breeds only once a year, as it breeds so late; occasionally, though, I expect it breeds twice. Its enemy is the Sparrowhawk, which is fairly common in the pine-forests, and as the Teydean Chaffinch feeds a great deal on the bare ground among the pines, it must fall an easy prey and be frequently snapped up without a chance of hiding itself. I destroyed many nests and pairs of *Accipiter nisus* where I was this spring, and found many "kills" of *F. teydea*, evidently by Sparrowhawks. I especially laid myself out to destroy them, so as to counterbalance the loss occasioned by the nests of *F. teydea* I took. As each nest was taken within a few days of incubation commencing, I expect that in each case the parents will lay again; in fact the pair belonging to my first nest were thinking of doing so the last time I was up in the forest. They are very tame cage-birds, and seem very hardy and easy to keep, provided they have some pine-seeds. They will eat canary-seed and millet, but a butterfly, moth, or grasshopper is what they prefer to all, and soon after being caught they will take them from the hand; they care for no green food that I can find.

I have been surprised to find so much to tell after all that has already been written on these islands, and as I shall probably be here for another year, it is possible that I may have something more to say on the islands of Lanzarote and Hierro, to which I am shortly going.

XLVI.—*On the Ornithology of the Valleys of Andorra and the Upper Ariège, and other Contributions to the Avifauna of the Eastern Pyrenees.* By W. EAGLE CLARKE, F.L.S., &c.

THE birds of the Republic of Andorra and of the Department of Ariège not having come within the scope of the investigations of Mr. Howard Saunders (*Ibis*, 1884, pp. 365–392) and Mr. James Backhouse, Jr. (*Zoologist*, 1884, and *Ibis*, 1887, pp. 66–74),—the only members of the B. O. U. who appear to have devoted special attention to the Pyrenees—it is, perhaps, unnecessary to tender any apology for offering to the brotherhood of ‘The Ibis’ this slight contribution to the Pyrenean Avifauna. Indeed, so far as the remote and little-visited Valley of Andorra is concerned, it is believed that its birds are here treated of for the first time.

The ornithological reconnaissance here recorded was planned by Mr. Backhouse and the writer; but when all was satisfactorily arranged, my experienced friend was most unfortunately, and much to our mutual regret and disappointment, compelled to desert me. I, however, obtained a congenial companion in my friend Mr. Basil Carter, of Masham, Yorkshire, a young and promising ornithologist, whose valuable cooperation it affords me much pleasure to acknowledge.

We arrived at Ax, our headquarters in the Upper Ariège, on the morning of the 12th of May of the present year. Ax is an extremely pleasant little town in the very heart of the French Pyrenees, and situated at the head of the main valley of the River Ariège, which here trifurcates, the valley of the Upper Ariège extending due south, that of the River

Ariège south-east, and that of the River de la Lauze due east. Thus three streams unite in the town to form a fine river, which, at the time of our sojourn, was a brawling torrent, swollen by the melting snows. Beneath Ax are a series of subterranean caldrons, varying much in the chemical constituents of their waters and in their temperature, which ranges from 76° to 113° Fahrenheit; and these, together with surrounding beautiful scenery, have combined to make the town a much frequented, but not fashionable, watering-place and summer resort. The valley here is 2300 feet in elevation, is narrow, and shut in by high mountains, the lower slopes of which are clothed with woodlands of oak and other deciduous trees, coppice or brushwood. Above these, on the west and south-west, is a beech-region, followed at 4500 feet by dark pine-forests, which contrast grandly with the perpetual snows that succeed and crown them, and with the beautiful delicate green of the beeches below. On the east side the woodlands are succeeded by pasture-lands, characteristic of their limestone formation.

We devoted a few days to an investigation of this beautiful district. Birds were fairly numerous in the woodlands at the lower elevations, and although nothing of special importance was noted, yet it was interesting to observe that several species here found the limit to their high Pyrenean range. The Magpie, so ubiquitously and abundantly observed on the journey, was very scarce and not observed in the higher woodlands or the upper valleys, though they afford suitable haunts. The same was noted with regard to the Blackbird, Chiffchaff, Willow Wren, Long-tailed Titmouse, Great Titmouse, Blue Titmouse, Woodchat Shrike, Creeper, Tree Pipit, Greenfinch, Sparrow, Bullfinch, Green Woodpecker, Wryneck, Turtle Dove, and Common Sandpiper. The beech-region did not shelter many species, and the finding in it at 4150 feet of a nest of the Song Thrush, a *rara avis* here in the summer, must rank as a distinct success. The pine-forests, which were very extensive, were equally disappointing. Most ornithologists are aware that to accomplish even a little in such a habitat, a considerable amount of ground must be

covered. Here even this was denied us, for the forests were under deep snow, and the several expeditions, carried out under most laborious conditions, cannot be regarded as far removed from failures, for our chief finds were the breeding of the Carrion Crow and the Ring Dove—more Pyrenean summer rarities—while the recording of the altitudinal range of various common species, including the Robin, the Cuckoo, the Creeper, Chaffinch, and Coal Titmouse, in the snow-clad pine-forest above 5000 feet may, perhaps, be considered useful work.

A day was spent at Tarascon, seventeen miles below Ax, where the valley proved to be under high cultivation, orchards and vineyards occupying the lower lands, followed by rich meadows. Here several species were more numerously represented than at Ax, but nothing worthy of note was observed.

Two visits were paid to the uppermost portion of the valley of the Ariège. Above Ax the valley narrows considerably, and before the village of Merens is reached the mountains close in and form a short but narrow gorge with towering cliffs, affording just sufficient room for the river and the road. Just beyond this, and north of the village, the road passes under a stupendous precipice. Here we first made the acquaintance of the Crag Martin, which found many suitable nesting-sites in the numerous recesses in its rocky face. A few Choughs and Falcons were also observed here, and far above its pine-clad and snowy summit soared several large Eagles. Above Merens the valley becomes more uninteresting. Trees become scarce, the mountain-sides are strewn with innumerable boulders, and bird-life becomes poorly represented. The Jay, however, ascends the valley thus far, and here the Wheatear was first seen. At the head of this valley or basin, the great dividing mountains gather closely around the last village of France, Hospitalet, a really miserable place, situated, as it were, on the very verge of the possibility of human existence. Over 4600 feet above the sea, overshadowed on the south, east, and west by peaks or ridges never free from snow, and open only to the north, Hospitalet presents a sort of frost-bitten appearance which is difficult to describe. On the 19th

of May this village still wore a wintry aspect, for the few trees in the valley were leafless and the snow was everywhere close at hand. Indeed, save for the presence of a few gay alpine flowers, it was difficult to realize that one was in the south of Europe, and that the season was not what it seemed. Nor does the native contribute anything to make the place more genial, for the narrow crooked passages which pass for streets are ankle-deep in manure, or in filth cast from the windows of the bordering houses so frequently as to render wading through these "rotten rows" rather nervous work. Of birds, the feature of this place was the extraordinary abundance of the Hedge Accentor. We never before saw this bird in numbers anything approaching those in which it was here. It was also simply everywhere, from the village and its environs up to the highest point reached in our investigations on the mountains, 6100 feet, where its cheery song was heard, and its flitting form noted on all the patches of rhododendron-scrub or of barren rocks free from snow. The other species which push their way thus far up this higher Pyrenean valley are the Martin, Whinchat, Yellow Bunting, and Water Pipit, which are common, the latter especially so in the moist meadows by the river-side; the Blackstart, Grey Linnet, Swallow, Dipper, Grey Wagtail, Chaffinch, and Red-breast were also observed, though in less numbers; whilst the Kestrel, Missel Thrush, and Wren ascend the mountains to at least 6000 feet.

One of the main objects for visiting Hospitalet was to arrange, if possible, for a guide and mules to take us over the main chain into Andorra—25 miles distant—which can be accomplished from this village by two passes, the Port de Framiquel and the Port de Saldeu, both at little over 8200 feet. On making known our desire to him who had been recommended to us as a guide, and to the landlord of the little auberge, we were at once informed that such a journey was quite impossible, both exclaiming "Neige, beaucoup de neige!" so energetically and repeatedly that there seemed no other course open to us but to abandon our plans. It was explained to us that the passes are not sufficiently free from

snow to allow mules to traverse them until July, and that at the present time the snow lay both deep and soft from near the foot of the pass to its summit, rendering the journey, which is both difficult and long under most favourable circumstances, now quite impossible. Our would-be, but not disinterested, advisers suggested the long and costly journey, requiring a number of mules, *vid* Bourg-Madame and the Spanish towns of Puycerda and Urgel, and thus to approach Andorra from the south—a recommendation which we declined, and, much disappointed, we returned to Ax.

A day or two after we heard that a small party of Andorreans had crossed the mountains on foot by the Port de Saldeu, and on the receipt of this news we at once posted to Hospitalet in the hope that we might be able to accomplish a similar journey. After some conversation, during which the now familiar words "*Neige, beaucoup de neige*" were frequently introduced, perhaps to forewarn us, all was satisfactorily arranged for a start on the following morning. At 5 A.M. on the 20th of May, accompanied by our guide Minguel, and carrying a minimum amount of luggage for a week's sojourn, including guns and cartridges, we set out for Andorra. Our route at first lay through high pasture-lands covered here and there by great sheets of snow. At 6000 feet the snow from the high enclosing mountains crossed the narrow valley, and the river, which we had hitherto been following, was lost under its mantle. All was now snow, except where here and there a high rock cropped out from beneath and formed a welcome object on which to cast and rest the eyes from the brilliantly sunlit and dazzling surroundings. Plodding along slowly with the snow up to our knees, but following as much as possible the track of the Andorreans, we reached the summit of the Port de Saldeu, 8202 feet, in good form, at 9.45 A.M. Bird-life was not absent from this high snow-clad valley. The Dipper was observed on the river's margin until its waters "*took the snow.*" The Hedge Accentor was the most abundant species, and occurred, along with the Black Redstart and Water Pipit, on every rock that peeped from under the snow, but ceasing when

these ceased at 7100 feet. At the very summit of the pass we saw a pair of Sky Larks, the first we had seen in the Pyrenees, and the male soon after hovered above and poured forth his welcome song over the snow as blithely as we ever heard it over an English meadow. On the few bare wind-swept patches were a few Wheatears and Water Pipits. A Common Martin, too, had ventured thus far in search of food, and was busily engaged skimming the snow. The scene around us was of the grandest possible description. On every side were the numerous "pics," many of them over 10,000 feet, and their little-less-lofty connecting-ridges, which shut in so very effectually this little Republic of Andorra from the outside world. This high enclosing rim and its flanks, as seen from this stand-point, were entirely mantled with glistening snow, and presented a strikingly beautiful panorama, which we were fortunate in seeing under most favourable conditions, the day being brilliantly fine and the deep blue sky without a cloud.

A steep descent brought us to the hamlet of Saldeu, the most north-westerly in the Republic, near the head of its main valley, 6000 feet in altitude, and a miserable little place, still almost entirely surrounded by snow.

Before proceeding further it may be well to make a few general remarks on this interesting country. The Republic of Andorra may be said to consist of an isolated valley in the heart of the Pyrenees, since it is cut off from France on the one hand and Spain on the other by a rim of lofty mountains, ranging in altitude from 8000 to 10,000 feet, and is approached on all sides by mule-paths only. It comprises a main valley—the valley of the River Valira—and several side valleys, two of which are of some importance, namely those of Urdino and Escaldas, and have led to Andorra being described as consisting of three valleys, and also to its being known in France as "Les Vallées." Not only, however, is this little State hemmed in by the Pyrenees, but lofty mountains everywhere dominate its interior, rendering it entirely an alpine region intersected by a few narrow valleys or ravines, and it has been said of it, on the highest authority*,

* The Hon James Erskine Murray.

that it is one of the wildest districts to be found in the whole chain. It is compact in form, has an area of about 600 square miles, and its greatest length from north to south is 17 miles, while it is about the same in width from east to west.

The complete isolation enjoyed by Andorra has not been without most remarkable results. Indeed, there is much that savours of the enigmatical and is without historical parallel in its status and relationships. Thus it is physically a part of Spain, since it is within the watershed of the Ebro; yet, politically, though its people are Catalans, and therefore of an Iberian race, the influence of France is paramount, and is sought and desired; while ecclesiastically it is under the sway of His Highness the Prince-Bishop of Urgel. Although an absolute cypher on the face of Europe, forgotten by or unknown to most, this insignificant Peasant-Commune can boast of being the oldest free republic in existence, since it has preserved its independence for twelve long centuries; disturbed, no doubt, but uninfluenced and unaffected by the vicissitudes of fortune experienced by its, in this respect, less favoured but powerful neighbours. Governed by unwritten laws, unfettered by national debt, almost untaxed and free from crime, without an army, a steam-engine, or a carriage-road, Andorra is indeed the "*curiosité politique*" which the great Napoleon is said to have called it, and which was possibly the reason that induced him to allow it to remain undisturbed.

The Andorreans are below the middle height, and we saw but few men or women possessing claims to good looks. Their general occupation is pastoral, and their flocks comprise sheep, goats, cattle, and mules. They are certainly an industrious race, and have pushed their cultivated patches far up the mountain-sides, and, above Andorra town, have irrigated them by an effective and extensive system of conduits furnished with a sluice at each highland allotment. The women largely attend to all matters of cultivation, while the men, all hardy and experienced mountaineers, follow the more congenial and profitable profession of the contrabandier—a calling for which the nature and geographical position of their country is most admirably adapted. Matches and

embroidered scarves, both subject to high protective tariffs in France, are the chief articles of the smuggling trade, and both are readily obtained from Spain.

To return to our narrative. We were now in the extreme north-west portion of the main valley of Andorra, which here extends in a south-west direction for a couple of miles, when the mountains close in. This uppermost basin varies in altitude from 6000 feet at Saldeu, its only hamlet, to 5500 feet where the valley narrows. Such portions of it as are productive consist of pasture; the high flanking mountains are, for the most part, barren, but those on the north-east side are clothed with pine-forest, which at the time of our visit was impassable, deep snow clothing it down to the river's margin. The long defile which succeeds affords much wild and romantic scenery. The river boils through a narrow rocky course, steep cliffs wall in the stream and its bordering mule-track, several fine waterfalls pour down the mountainsides, while on the grassy slopes beautiful alpine flowers and a profusion of gay butterflies add to its many charms. This passed, we found ourselves at Canillo, the second town of importance in the Republic, and at the head of the second basin of the series into which the valley of the Valira may be said to be divided. It is a small village situated among rich arable and pasture-lands, and just below it, on the west side of the river, a noble cliff forms a remarkable feature in the landscape. This section of the valley lies between about 4000 to 5000 feet in altitude, and the few woods that clothe its mountains are at a considerable elevation. About a mile below Canillo the fringing mountains again approach each other, and the valley becomes narrow and steep, with coppice-growth not unfrequent on its slopes. It widens out a little at the hamlet of Encamp, but again closes in above Escaldas, which is at the head of the main basin of the valley. This main basin of the Republic runs due north and south, and is, in comparison with the others, a fine flat valley—by some it is described as a plain—perhaps nowhere more than half a mile wide and about three miles in length, but possessed of fine pasture-lands and woodlands. Here is situated Andorra

(3400 feet), the chief town, where we arrived at 6 o'clock on the evening of the day we left Hospitalet, after a rough journey of not less than twenty-five miles, entirely performed on foot. The hamlet of Andorra—for it savours of satire to dub it a city—is situated in the widest part of the valley, on its western side, a little above the river, and has a population of about one thousand. Its wretched houses are all jumbled together; indeed, they might have been dropped from above, so delightfully irregular are they and presenting, as they do, all manner of angles to the labyrinth of narrow passages which do duty for streets in this vehicleless country, and which are redolent with every variety of unsavoury smell. The principal building is the Casa del Valle, or parliament-house, in which the Council General meets, an ancient edifice resembling a barn with two small turrets, but evidently little cared for, since it is much dilapidated and the chief resort of the few Sparrows seen in the Republic. But unenchanted as the town may be, its surroundings are of an entirely different character. Below lies a broad valley of rich alluvial land, clothed with hundreds of acres of lovely white narcissus, at the time of our sojourn a mass of bloom, and a fine brawling river. Above, on every side, are snow-capped mountains, some of the flanks of which are scattered with barren rocks or present great naked cliffs; others are clothed with pine-forest, while at lower elevations are shady woodlands. Thus Andorra was not without charms of the highest order, and the contrast between being within and without its walls reminded one that, in some respects at least, it is not in more remote climes only that "man alone is vile."

To complete the sketch of the features of the main valley (to which and its enclosing mountains our ornithological rambles were entirely confined) it only remains to be said that about three miles below Andorra the mountains again gather together and form a fine defile. Below this is San Julia, the last of the Andorran hamlets, and close to the south-western frontier of the territory. It is situated in the last basin of the Valira, is overshadowed by high mountains, and is the lowest land in Andorra, being 3000 feet above the sea.

The avifauna of Andorra is eminently Pyrenean, and possesses, it is believed, no single species peculiar to, or characteristic of, the regions north or south of the great dividing range. The ornis of the valley is not, however, without its peculiarities, which are of a negative character, since they are to be found in the absence of species of wide European range, species which were, without exception, observed by us in the valleys of Ariège. The absentees are the Blackcap, Long-tailed Titmouse, Marsh Titmouse, Tree Pipit, Golden Oriole, Woodchat Shrike, Swallow, Sand Martin, Greenfinch, Bullfinch, Magpie, Swift, Wryneck, and Ring Dove. The absence of some of these is perhaps not remarkable in a country where the lowest lands are 3000 feet in altitude. Some, it is true, may have been overlooked, but it is not thought these *could* account for more than one or two species at the most. The non-presence, however, of such not-to-be-overlooked birds as the Blackcap, Golden Oriole, Swallow, Greenfinch, Bullfinch, Magpie, and Swift, to say nothing of the rest, is worthy of special remark. The following species, among others, were observed in Andorra, but not in the valley of the Ariège, and are mentioned because they have also not been noted for the French Pyrenees by Messrs. Saunders and Backhouse, namely:—the Garden Warbler, Orphean Warbler, Spotted Flycatcher, and Citril Finch. The following may be mentioned as uncommon species:—the Willow Warbler, Orphean Warbler, Great Titmouse, Blue Titmouse, Grey Wagtail, Red-backed Skrike, Pied Flycatcher, Sparrow, Sky Lark, Carrion Crow, and Common Sandpiper.

Perhaps the most interesting of our observations related to the breeding of the Crag Martin (*Cotile rupestris*) under the caves of the houses in the centre of the town of Andorra. On the day after our arrival we were much surprised to observe several large pale-coloured Martins flying in and about the town. At the time we were somewhat puzzled with this bird, for it appeared, when now seen at close quarters, to be much lighter in colour than the one we had seen so abundantly flying above us on the great cliff between Merens and Ax, and also to have less chestnut in the plumage of its

under surface; but an examination of a skin of *C. rupestris*, on our return, removed all doubts from our minds as to the identity of the bird. Several attempts were made to procure a specimen, but it was found most difficult to avoid covering windows and other undesirable objects with the gun, and several snap-shots at the bird failed. The nests, of which we saw four in the town, were placed, in three instances, about three inches below the eaves on the house-side, the fourth being placed on the side of a beam supporting an overhanging roof, which it was just under. The nests were large structures of mud, quite open at the top, and the one which we managed with some difficulty to reach was lined with feathers; but though the bird was in the nest, and the date was the 22nd of May, yet no eggs were contained in it, much to our disappointment. The other nests were beyond reach, save one, and the owner of the house assured us that it contained no eggs, but would not allow us to ascertain if such was the case. This instance of the breeding of the Crag Martin in the narrow streets of the town of Andorra is, it is thought, a somewhat unusual circumstance, and more especially so as the town is not situated upon, or in the close proximity of, crags or cliffs. There are many suitable nesting-places opposite the town, but cultivated lowlands intervene; and, strange to say, these customary breeding-habitats had but few Crag Martins frequenting them. The bird was also noted in the villages of Escaldas and Encamp, but we did not observe any nests, which might, however, have existed. There were plenty of them on the great cliff at Canillo.

It is perhaps unnecessary here to dilate more on the ornithic features of Andorra, for particulars concerning each species and its range in the Republic are given in the list that concludes this paper. It is enough to say that very generally our experience was a repetition of that on the French side, and that we had to contend with the same great disadvantages in the high pine-forests and on the mountains owing to the snow, which descended to 5800 feet.

Our stay in Andorra was not without its little trials, since residence there means dwelling among the peasants and con-

forming to their mode of life. However, apart from a dearth of cleanliness and its concomitants, we found the Andorreans an independent but inoffensive race, and they allowed us much freedom and every facility that could be desired for the pursuit of birds. Our single unpleasantness, or series of unpleasantnesses, was experienced with him from whom we might naturally have expected at least consideration, not to say protection, namely, our guide and interpreter, whose services we retained when it was found that Catalan alone was understood and spoken by the Andorreans. Minguel, however, had seen too much of the world, and his peasant morals had not been improved thereby. Once an artilleryman in the army of France, he had served in Algeria and Tonquin, and now an ardent smuggler, he, no doubt, thought us fair game for petty plunder. This led him to make out, in his own handwriting, ridiculously exorbitant charges for our accommodation at each of the places—Andorra, Canillo, and Saldeu—at which we stayed. Our protests were invariably contested by our servant, who, it is needless to say, was always on the side of our peasant-host. Finally he refused to accept the remuneration we had arranged to give him in return for his services.

On the 25th of May we left Saldeu—Minguel with his body well wrapped with contraband scarfs and carrying a quantity of matches—crossed the high pass during a severe snow-storm, and reached Ax the same evening.

On the 27th we left Ax for Perpignan—a town situated in a plain at the foot of the extreme Eastern Pyrenees, and close to the Mediterranean. This region presented a great contrast to the one we had just left. In the place of the high mountains and deep valleys was an extensive plain, only a remove above sea-level, and smiling under the extreme of cultivation; instead of snows were the blue waters of the Mediterranean; while the pine, the box, and the juniper were replaced by the vine, the cork-tree, and the ragged thirsty-looking *Cactus*. Our object in visiting this district was to investigate the bird-life of the series of étangs or lakes which on a glance at a map will be seen to extend from Nar-

bonne southwards, along the shores of the Mediterranean, to the foot-hills of the Pyrenees. To the imagination of the ornithologist such a series of low-lying lagoons, in such a latitude, present an ideal hunting-ground—one suggestive of *Herodii* and other interesting aquatic species—similar to that bird-paradise, the Camargue. A visit, however, soon dispels such flights of fancy; for in the place of reed-beds, of forest-like dimensions, of acres of sedges and tussocks, he encounters the handiwork of the ever-industrious Jacques Bonhomme. This worthy, with, no doubt, most praiseworthy perseverance, has pushed his vineyards and his patches of potatoes and onions to the very water's edge; and the spectacle of Jacques himself, nearly up to his middle in water, mowing the grasses, &c., that essay to grow in the shallows, gives a finishing touch to a scene which is certainly not ornithological. Indeed, these étangs are almost destitute of bird-life, the only species met with being here and there a Kentish Plover; while a pair of Blue-headed Yellow Wag-tails and of non-breeding Herons, and once the sight of a party of Pratincoles on some adjoining arable land, quite relieved the monotony of a ramble along their margins.

On the downs, which lie between the étangs and the sea, or which border the latter, bird-life is more abundant. Here the Short-toed Lark, the Kentish Plover, and the Stone Curlew were breeding in some numbers, and a small Harrier, probably Montagu's, was also observed. The marshy land which intersects these downs at and near the mouth of the river Tech, and of a small river south of it, afford breeding stations for the Great Reed Warbler, the Redshank, and other aquatic species. An interesting find on the shores of the Mediterranean was a nest of the Little Ringed Plover placed on the sand just above high-water mark, and within a few yards of the waves. Another nest was found on the downs, and not more than fifty yards from the sea. This species is, according to recognized authorities, rare at any season on the sea-coast of Central and Southern Europe.

A Carrion Crow was frequently seen hovering around the picturesque reed-tents of the fisher-folk which occur at in-

tervals along the coast, induced to remain, no doubt, by the abundance of offal which abounds about such settlements.

This concludes the sketch of our doings, for on the 1st of June, after having spent three weeks in these varied districts of the Pyrenees, we turned our faces homeward.

Sufficient particulars of each species observed, with notes carefully made as to its altitudinal range in the valleys and highlands of Andorra and Ariège, will be found in the list which concludes this paper. It may be well to remark that much care was bestowed on these altitudinal observations, which were made with an aneroid duly tested at Kew, and carefully checked, at intervals, with the official datum at Ax, upon which the heights are based.

As the result of the little expedition, we were able to add twenty species to the lists of Mr. Saunders and Mr. Backhouse. These are :—The Orphean Warbler, Garden Warbler, Wood Warbler, Melodious Warbler (*Hypolais polyglotta*), Great Reed Warbler, Golden Oriole, Red-backed Shrike, Spotted Flycatcher, Sand Martin, Citril Finch, Short-toed Lark, Jackdaw, Swift, Nightjar, Montagu's Harrier, Heron, Turtle Dove, Quail, Pratincole, and Little Ringed Plover. Some of these had no place in my friends' lists, because neither of them had, I believe, remained in the Pyrenees during the breeding-season, a fact which must give a little additional value to these notes.

In conclusion, a pleasant duty remains, namely, to thank Lord Lilford, Mr. Howard Saunders, and Mr. Backhouse, Jr., for the kindly interest they have taken in this paper, and M. Spuller, Minister for Foreign Affairs of the Republic of France, for granting special permits to shoot specimens during the close season.

1. *Turdus viscivorus*, L.

Andorra.—The Missel Thrush was common on the highlands, especially among the pines and firs on the mountain-sides; but was not observed below 5000 feet. It was breeding at 6350 feet, the greatest altitude at which the species was noted.

Upper Ariège.—Abundant, and nesting at Tarascon at 1572 feet, and in the pines on the mountain above Hospitalet at 6000 feet.

2. *TURDUS MUSICUS*, L.

Upper Ariège.—On the 13th of May we found a nest of the Song Thrush with five eggs in the beech-region above Ax at 4150 feet; and a bird of this species was observed in the pine-forest S.W. of Ax at 4500 feet three days later. These are interesting facts, since the bird is rare as a breeding-species in Southern Europe. M. Lacroix* says of it "ne niche pas" for all of the Departments of the French Pyrenees, and, regarding Ariège (p. 72), "On le voit arriver fin octobre, séjourne quelque peu et repasse en mars et avril."

3. *TURDUS MERULA*, L.

Andorra.—The Blackbird was not common. Several nests were found near the town of Andorra, and the bird was also observed in the higher basin of the valley, between Encamp and Canillo, at 4800 feet.

Upper Ariège.—Common, but confined to the main valley, where it was observed as high as 2950 feet, in the woods on the mountain-side.

4. *CINCLUS ALBICOLLIS* (Vieill.).

Andorra.—The Pale-backed Dipper appears to be confined to the upper basins of the valley of the Valira, and was not observed below Escaldas, at 3800 feet. Above this height it is common to where the river issues from the snow at about 6000 feet.

Upper Ariège.—Fairly common on the rivers about Ax and on the upper streams to the snow-line.

5. *SAXICOLA ŒNANTHE* (L.).

Andorra.—The Whcatear was only observed in the high basin of the valley, above 5000 feet, and was not common. Several were seen on the patches free from snow at the summit of the Port de Saldeu, 8200 feet.

* 'Catalogue Raisonné des Oiseaux observés dans les Pyrénées Françaises et les Régions Limitrophes.' Par Adrien Lacroix, 1873-1875.

Upper Ariège.—Both uncommon and local, having been only noted in the upper valley of the Ariège about Merens, at 4000 feet, and at Hospitalet at 4800 feet.

6. *SAXICOLA ALBICOLLIS*, Vieill.

Perpignan.—A fine male Black-eared Chat was observed in a vineyard in the outskirts of the town on the 28th of May.

7. *PRATINCOLA RUBETRA* (L.).

Andorra.—The Whinchat was fairly common in meadows about Canillo and Saldeu, but not observed in the lower basins of the valley, though they offer abundant suitable habitats. It appeared to affect only the higher lands from 5000 to 6150 feet.

Upper Ariège.—Common above Ax (2600 feet) and in the valley of the Ariège to Hospitalet (4800 feet).

8. *PRATINCOLA RUBICOLA* (L.).

Mediterranean Region.—A Stonechat was seen on some waste land near the village of Saint Nazaire on the 28th of May.

9. *RUTICILLA TITYS* (Scopoli).

Andorra.—The Black Redstart is perhaps the commonest Pyrenean bird, and one that appears suited to the great variety of habitat afforded by the region. We noted its nest and young in the wall of a building in the town of Andorra. It affects also roadside walls, Pigeon-cots in the villages, the crags and boulders on the mountains, and the rocks that crop up from under the deep snow in the Port de Saldeu at 6500 feet.

Upper Ariège.—Equally common in the valleys, and in situations above 2700 feet.

10. *ERITHACUS RUBECULA* (L.).

Andorra.—The Redbreast was fairly common in the woodlands and in the pine-forests up to 5850 feet, where there was much snow.

Upper Ariège.—Common in the valleys and in the pine-forest up to 4900 feet.

11. DAULIAS LUSCINIA (L.).

Andorra.—The Nightingale was very common in all the woodlands in the lower basins of the valley from Escaldas to San Julia ; nesting chiefly in the box shrubs which form the undergrowth. One was heard in a small patch of coppice in the valley below Canillo at 4550 feet.

Upper Ariège.—Abundant in all suitable habitats ; but not affecting them to a greater elevation than 2850 feet.

12. SYLVIA CINEREA (Bechst.).

Andorra.—The Whitethroat was not uncommon about the town of Andorra, and one was shot on the roadside near Canillo at an elevation of 5000 feet.

Upper Ariège.—Was twice noted on the hillside above Ax, at from 2300 to 3200 feet.

13. SYLVIA ATRICAPILLA (Linn.).

Upper Ariège.—The Blackcap was very common in coppices and gardens at Tarascon and Ax, and occurs and nests up to 3200 feet. The nests found were in all instances placed in holly bushes.

Not observed in Andorra, and thought not to occur there.

14. SYLVIA ORPHEA, Temm.

Andorra.—A female Orphean Warbler was shot in the coppice between Andorra and Escaldos, on the 23rd of May.

15. SYLVIA HORTENSIS (Bechst.).

Andorra.—The Garden-Warbler was observed in some abundance among the willows at the river-side in the narrower portions of the valley above Encamp, and from 4000 to 5500 feet in elevation. The bird was shot for identification.

16. REGULUS CRISTATUS, Koch.

Andorra.—Common in the pine-forests between 5000 and 6000 feet.

Upper Ariège.—The Goldcrest was also abundant in the high pine-forests above Ax.

The Firecrest was not observed, though we kept a sharp look out, and shot several Goldcrests on suspicion.

17. *PHYLLOSCOPUS RUFUS* (Bechst.).

Andorra.—The Chiffchaff was common in the woodlands, where it ranges as high as 4750 feet.

Upper Ariège.—Common in the woods about Tarascon and Ax. Occurs in the beech-region above Ax to 4150 feet.

18. *PHYLLOSCOPUS TROCHILUS* (Linn.).

Andorra.—The Willow Wren was only heard once or twice in the woodlands on the north side of the valley opposite the town of Andorra.

Upper Ariège.—Once heard—in the coppice on the west side of the valley at Ax.

This species is evidently a rare summer bird in the heart of the Pyrenees.

19. *PHYLLOSCOPUS SIBILATRIX* (Bechst.).

Andorra.—Common in the woodlands from San Julia to Andorra, and in the pine-forests at Escaldas and Canillo, where the Wood Wren ranges up to 5700 feet.

Upper Ariège.—Abundant in the woodlands about Ax and Tarascon. Not observed above 3000 feet, nor in the pine-forests.

Perpignan.—Common in the great trees forming the grand avenue in the town.

20. *HYPOLAIS POLYGLOTTA* (Vieill.).

Mediterranean Region.—A male was shot in an orchard at Argelès-sur-Mer on the 30th of May. The song of this bird much resembles that of the Sedge Warbler, though it is readily distinguishable.

21. *ACROCEPHALUS TURDOIDES* (Meyer).

Mediterranean Region.—The Great Reed Warbler was fairly abundant in the reed-beds which extend from the embouchure of the River Tech southwards to Argelès-sur-Mer. A nest with five eggs was found on the 29th of May.

22. *ACCENTOR MODULARIS* (Linn.).

Andorra.—The Hedge Accentor was fairly common, but not observed below 4000 feet, in the valley near Encamp. It was frequently noted in the pine-forests up to 5700 feet.

Upper Ariège.—Was observed above Ax at 2650 feet, and in the beech-region at 4600. Its extraordinary abundance about and above Hospitalet has already been alluded to, as has also its occurrence in the Port de Saldeu up to 7100 feet. This is decidedly an alpine species in the Pyrenees. M. Lacroix's statement (*op. cit.* p. 89) regarding its status in Ariège—"Se montre dans tout le plaine en hiver, ne niche pas,"—makes it evident that he was quite unaware of the bird's abundance in the higher Pyrenees in summer.

23. *ACCENTOR COLLARIS* (Scop.).

Andorra.—Common on rocky places free from snow on the mountain-side above Saldeu from 7300 feet and upwards. Here the Alpine Accentor was a tame bird, and allowed a very close approach, the males uttering an unpretending song as they squatted on the great boulders. A female shot showed, from the state of the ovary, that it was not nesting on the 25th of May.

This species was not observed on the French side, but the northern slopes were under deep snow at the elevations affording suitable habitats.

24. *ACREDULA ROSEA* (Blyth).

Upper Ariège.—All the specimens of the Long-tailed Titmouse observed by us belonged to the British form. It was a common bird in the woodlands about Ax, but was not observed to occur above 2700 feet. At Tarascon, on the 17th May, a pair of old birds were accompanied by their numerous family, then well able to fly. An old female was shot near Tarascon.

This bird was not observed in the upper valley or in Andorra.

25. *PARUS MAJOR*, L.

Andorra.—A solitary individual observed near the town of Andorra was the only Great Titmouse seen in the Republic, and hence it would seem to be an uncommon species there.

Upper Ariège.—Evidently an uncommon bird in the high valley of the Ariège, since it was only twice observed about Ax, once at 3350 feet. It was seen at Tarascon on the

single day we spent there, and is probably commoner in the lower valley.

Perpignan.—Was noted near the town on the 28th of May.

26. *PARUS ATER*, L.

Andorra.—The Coal Titmouse was abundant in the pine-forests, where it was observed from 4500 to 5700 feet.

Upper Ariège.—Observed in the neighbourhood of Ax, where its nest was found, and common in the pine-forests above that town to as high as 5000 feet.

Here, again, we have to take exception to M. Lacroix's statements. Regarding the whole French Pyrenees, he says (*op. cit.* p. 113), "ne niche pas," and as to Ariège, "se montre pendant l'hiver, repart au printemps. Ne sait pas si elle niche."

27. *PARUS PALUSTRIS*, L.

Upper Ariège.—The Marsh Titmouse is an uncommon bird in the Pyrenees; but we carefully identified it on three different occasions in the valley at Ax, once in the garden of our hotel.

M. Lacroix has this species only in the Appendix to his Catalogue (*op. cit.* p. 269), remarking "très rare, ne niche pas," for the Departments of Aude, Hérault, and Pyrénées-Orientales only, its occurrence in Ariège being unknown to him.

28. *PARUS CÆRULEUS*, L.

Andorra.—The Blue Titmouse is a local and uncommon species, and was only seen in the woodlands of the main valley south of Andorra, towards San Julia.

Upper Ariège.—Not uncommon in the gardens about Ax.

Perpignan.—Observed in the highly cultivated plain which surrounds the town.

29. *PARUS CRISTATUS* (L.).

Andorra.—The Crested Titmouse is common in the pine-forests, ranging from 4500 to 5700 feet.

30. *CERTHIA FAMILIARIS*, L.

Andorra.—The Creeper was observed in the woodlands

about Andorra, and in the pine-forest above Escaldas at 4100 feet.

Upper Ariège.—Observed in the hotel garden at Ax, in the woodlands, and in the high pine-forests up to 5000 feet.

31. *TROGLODYTES PARVULUS*, Koch.

Andorra.—The Wren was found to have a wide and varied range. It was common in the vicinity of the town of Andorra; by the path and river-side in the valley up to 5150 feet, and in the pine-forests among the snow as high as 6100 feet.

Upper Ariège.—The same remarks apply. It was observed at Tarascon at 1600 feet, at Ax, and on the mountain above Hospitalet at 6100 feet, where there was much snow.

32. *MOTACILLA ALBA*, L.

Andorra.—The White Wagtail was not numerously represented. It was observed close to the town of Andorra, in the meadows between Escaldas and Encamp; and a pair was evidently nesting by the river-side at Canillo at 5000 feet.

Upper Ariège.—Only one pair seen, in the upper valley of the River Ariège between Ax and Merens.

33. *MOTACILLA MELANOPE*, Pall.

Andorra.—The Grey Wagtail is probably not a common bird in Andorra, for we only saw it once (on the 19th of May) in the upper basin between Saldeu and Canillo at 5400 feet.

Upper Ariège.—Fairly common on the rivers and their tributaries from Hospitalet (4600 feet) to Tarascon (1500 feet).

34. *MOTACILLA FLAVA*, L.

Mediterranean Region.—A pair seen on the margin of the étang of Canet and St. Nazaire on the 28th of May.

35. *MOTACILLA RAI* (Bp.).

Perpignan.—The Yellow Wagtail was common in all the vineyards.

36. *ANTHUS TRIVIALIS* (L.).

Upper Ariège.—The Tree Pipit was seen on two occasions

only, on the mountain-side south-west of Ax, at 4000 and 4600 feet. It is evidently an uncommon bird in the Pyrenean region, and M. Lacroix says of it (*op. cit.* p. 123) for Ariège, "Passe en avril; quelques couples restent en été; passe de nouveau fin août et septembre."

Not observed in Andorra.

37. *ANTHUS SPIPOLETTA* (L.).

Andorra.—The Water-Pipit is one of the commonest birds to be observed in the high Pyrenees. In Andorra we found it in the vicinity of water in spots ranging from 5000 to 8200 feet—on the summit of the Port de Saldeu, where it frequented bare patches in the great snow-field. Two nests with eggs were obtained above Canillo on the 24th of May.

Upper Ariège.—Abundant on the mountains about Ax, from 4300 feet; and in the upper valley of the Ariège, where it was observed abundantly above Hospitalet, even among the snow and rocks at 7100 feet. Above Ax, on the 13th of May, this bird was still seen, in parties, and evidently not breeding.

38. *ORIOLOUS GALBULA*, L.

Upper Ariège.—Common in the orchards and woodlands at Tarascon, and in the woods at low elevations about Ax, where, however, it does not occur above 3000 feet.

The Golden Oriole was not observed in Andorra.

39. *LANIUS COLLURIO*, L.

Andorra.—An adult male Red-backed Shrike shot near the town of Andorra on the 20th of May was the only evidence we obtained of this bird's presence in the Republic.

Upper Ariège.—A male seen on the hedgerow of a mountain-meadow east of Ax, at 3500 feet, was the only one noted for the French Pyrenean region.

40. *LANIUS POMERANUS*, Sparrman.

Upper Ariège.—An adult male Woodchat was observed just outside the town of Ax on the 18th of May.

41. *MUSCICAPA GRISOLA*, L.

Andorra.—Very common in the main basin of the valley

between Andorra and San Julia in the oak woods. The Spotted Flycatcher was not observed elsewhere, or in the valleys of the Upper Ariège.

42. *MUSCICAPA ATRICAPILLA*, L.

Andorra.—The Pied Flycatcher was seen and shot in the wooded portion of the valley between Andorra and Escaldas (3400 feet).

Upper Ariège.—A pair were observed in the woodlands above Ax at 2700 feet on the 14th of May, and were evidently nest-building. One was seen in the beech-region south of Ax at 4500 feet, and which was partially under snow. M. Lacroix says of this species in Ariège, "De passage au printemps et en automne, niche accidentellement."

43. *HIRUNDO RUSTICA*, L.

Upper Ariège.—Abundant about Tarascon, Ax, and in the upper valley of the Ariège to above Hospitalet and an elevation of 5000 feet.

The Swallow was entirely absent from Andorra.

Perpignan.—Common.

44. *CHELIDON URBICA* (L.).

Andorra.—Common throughout the valley; breeding on the faces of the great cliffs on the mountain-sides, and more rarely in the towns. Was nesting at 5300 feet on the cliff at Canillo; and was sailing over the snow at the summit of the Port de Saldeu, on the brilliant morning of the 19th of May.

Upper Ariège.—The Martin was very common in the valley from Tarascon to Hospitalet, and above to the Andorrecan frontier.

45. *COTILE RIPARIA* (L.).

Upper Ariège.—A solitary Sand Martin was distinctly seen at Ax on the 26th of May.

46. *COTILE RUPESTRIS*.

Andorra.—The nesting of the Crag Martin under the eaves of the houses in the centre of the town of Andorra (3400 feet) has already been alluded to, as has also its

occurrence in the villages of Escaldas and Encamp, where it may also have been nesting. A few were seen on the cliffs above Andorra and Canillo (5500 feet).

Upper Ariège.—Was very abundant on the great cliff below Merens, where the many recesses in its face offered abundant nesting-sites.

47. *CARDUELIS ELEGANS*, Stephens.

Andorra.—The Goldfinch was an extremely common bird about the town of Andorra, where several of its nests were obtained. One was seen in a garden at Encamp higher up the valley at 4100 feet, but not above.

Upper Ariège.—Common in gardens about Ax and Tarascon, but entirely confined to the lower ground, and not observed in the higher valleys.

Perpignan.—Abundant in vineyards and gardens around the town.

48. *CHRYSOMITRIS CITRINELLA* (L.).

Andorra.—The Citril Finch was fairly numerous amongst the silver firs scattered over the mountain-side above Escaldas. Here they were flying about in small parties, at an elevation of from 5300 to 6000 feet, and were equally noisy as they were restless and shy. So wary were they that it was with some difficulty we obtained a specimen—an adult male. A pair was also observed and heard in the pines above Canillo, at 6000 feet, on the 24th of May.

This appears to be an extremely restless bird, first here and then far away, alighting on the pines for a moment, and then off again, to return in a few minutes. The note is metallic in tone and very singular, reminding one of the sound produced by those children's toys which have a musical accompaniment produced by a spiked wheel acting upon a tongue of thin metal.

We did not observe it in Ariège; but M. Lacroix says (*op. cit.* p. 144):—"Quelques rares couples se reproduisent sur les montagnes de ce département."

49. *SERINUS HORTULANUS*, Koch.

Andorra.—The active little Serin Finch was extremely

common in the vicinity of the towns of Andorra, Encamp, and Canillo. It was also heard singing among the pine-trees on the mountain above Canillo at 6000 feet.

Upper Ariège.—Very common in gardens and orchards at Tarascon. Less common at Ax, where we found the nest and eggs in a juniper-bush on the mountain-side at 2900 feet.

Perpignan District.—Very common.

50. *LIGURINUS CHLORIS* (L.).

Upper Ariège.—The Greenfinch was common at Tarascon and Ax, but confined to the valley and the vicinity of the towns.

This bird was not observed in the valley of Andorra.

Perpignan District.—Common.

51. *PASSER DOMESTICUS* (L.).

Andorra.—The Sparrow is only a citizen of Andorra, where a few affect the houses, being particularly partial to the august but dilapidated Casa de Valle, or parliament-house of the Republic, and which, it is thought, not inappropriately, bears the motto *Virtus unita fortior*!

Upper Ariège.—Not uncommon at Tarascon; but at Ax there are very few in the town, and it was not observed elsewhere.

Perpignan District.—Common.

52. *PASSER MONTANUS* (L.).

Perpignan.—Observed in the neighbourhood of the town.

53. *FRINGILLA CÆLEBS*, L.

Andorra.—Common throughout the valley and in the pine-forests up to 5500 feet.

Upper Ariège.—The Chaffinch was also abundant about Ax and up to the head of the valley at Hospitalet (4630 feet). In the pine-forests above Ax it was noted up to 5500 feet.

54. *LINOTA CANNABINA* (L.).

Andorra.—The Linnet was observed in the vicinity of the town of Andorra, was abundant on the cultivated lands about Canillo (5100 feet), where we saw some brilliantly-

tinted males, and was seen on both our visits to Saldeu at 6000 feet.

Upper Ariège.—Not common, and only observed above Ax at 3150 feet, and at Hospitalet, near to the headwaters of the Ariège, at 4550 feet.

Perpignan District.—Common.

55. *PYRRHULA EUROPEA*, Vieill.

Upper Ariège.—The Bullfinch was observed at Tarascon and in the hotel garden at Ax. In the pine-forest above the latter town a male was noted at 4650 feet.

This bird was not observed in the Valley of Andorra.

56. *LOXIA CURVIROSTRA*, L.

Andorra.—An adult female and bird of the year in full plumage were shot in the pine-forest on the mountain above Escaldas on the 21st of May.

57. *EMBERIZA MILIARIA*, L.

Perpignan District.—The Corn Bunting is a common bird in the lowland district.

58. *EMBERIZA CITRINELLA*, L.

Andorra.—The Yellow Bunting was only observed in the upper basin of the River Valira, ranging in the valley from Canillo (5100 feet) to Saldeu (6000 feet).

Upper Ariège.—One or two were seen at Ax ; but here also it was most numerous in the uppermost portion of the valley about Hospitalet (4650 feet).

59. *EMBERIZA CIRCUS*, L.

Andorra.—A female was shot, and a nest with three eggs found, in the wood north of Andorra on the 23rd of May.

60. *EMBERIZA CIA*, L.

Andorra.—The Meadow Bunting was common in the valley from Andorra (3400 feet) to Canillo (5100 feet).

Upper Ariège.—Common above Ax at 2900 feet, and throughout the upper valley at Hospitalet to 4650 feet.

61. *ALAUDA ARVENSIS*, L.

Andorra.—Considering that the Sky Lark is so common in

the plains at the base of the foot-hills of the Pyrenees, yet entirely absent from the valleys of Andorra and the Upper Ariège, its occurrence on the great snow-fields at the summit of the Col de Saldeu (8200 feet) was somewhat remarkable. Here a pair were seen, of which the male was singing gaily, on the 19th of May; but on the 26th two birds, probably the same pair, were seen about 1000 feet lower—perhaps driven down by the heavy snow which was falling on that day.

M. Lacroix (*op. cit.* p. 127) remarks for Ariège, “Arrive dans les plaines de ce département en octobre, repart en avril, ne niche pas.”

Perpignan District.—Very common.

62. *ALAUDA CRISTATA*, L.

Perpignan District.—The Crested Lark was not uncommon on arable land.

63. *CALANDRELLA BRACHYDACTYLA* (Leisl.).

Mediterranean District.—The Short-toed Lark was nesting in numbers on the downs, over which the male hovers, uttering his short warbling song. We found many nests placed at the foot of the thin tufts of grass, and noted concerning them that the birds showed a decided predilection for white material for their lining. Some were lined with white wool, others with thistle-down, much-bleached grasses, and one had a bit of white sail-cloth among the other materials.

64. *MELANOCORYPHA CALANDRA* (L.).

Mediterranean Region.—A few Calandra Larks were seen on the meadows and downs bordering the sea; but it was not a common bird.

65. *PYRRHOCORAX ALPINUS*, Koch.

Andorra.—Alpine Choughs were numerous on the cliff at Canillo, and were satisfactorily identified. Choughs were also seen on the cliffs north of the town of Andorra, but never under conditions favourable for their specific determination.

[*Upper Ariège*.—A Chough was very numerous on the

cliff at Tarascon, and a few were observed on that below Merens; but the distances in both cases rendered it impossible to determine the species.]

66. *GARRULUS GLANDARIUS* (L.).

Andorra.—Fairly common throughout the valley, and although not observed in the mountain-forests the Jay occurs as high as 5400 feet between Canillo and Saldeu.

Upper Ariège.—Very common about Tarascon and Ax, and occurs in the higher valley to near Hospitalet, at 4000 feet. This bird was not seen in the pine-forests, though it was noted in the beech-region above Ax at 4650 feet.

67. *PICA RUSTICA* (Scop.).

Upper Ariège.—The Magpie is a species of which the Pyrenean distribution thins out in this particular district at Ax, where two pairs only were observed—one at 2500 feet.

Perpignan District.—Fairly common.

68. *CORVUS MONEDULA*, Linn.

Upper Ariège.—The Jackdaw is a *rara avis* in the Pyrenees in the breeding-season, and M. Lacroix (*op. cit.* p. 61) says of it, for the range generally, “De passage en hiver, en compagnie des espèces précédentes [Rook, Carrion and Grey Crows] avec lesquels il forme de grandes bandes; nous quitte vers le 15 mars, ne niche pas.” Nor was the bird observed by Mr. Saunders or Mr. Backhouse. We were, however, fortunate enough to observe it at Ussat-les-Bains, a little below Ax, on the 17th of May, when one flew so close to us as to render its identification a matter of ease and certainty.

69. *CORVUS CORONE*, Linn.

Andorra.—A pair of Carrion Crows were observed in the pine-forest above Escaldas at 4800 feet on the 20th of May, which, from their behaviour, had evidently a nest close by. These were the only ones seen in the Republic.

Upper Ariège.—A pair had also taken up their quarters in the pine-forest west of Ax, where we saw them at 4600 feet on the 13th of May, when they were very noisy at our intrusion. M. Lacroix says (*op. cit.* p. 58) that it nests accidentally in Ariège.

Mediterranean Region.—One was observed hanging about the reed huts of the fishermen on the shore at Argelès-sur-Mer, evidently attracted by the offal afforded by such a community.

70. CORVUS CORAX, L.

Andorra.—The Raven was only once identified, namely, on the mountains south of Canillo, at 6000 feet, where it was both seen and heard on the 23rd of May.

71. CYPSELUS APUS (L.).

Upper Ariège.—The Swift does not appear to penetrate into the uppermost valleys of the Pyrenees; but it was very common at Ax.

It was not seen in, and is believed to be entirely absent from, Andorra.

Perpignan District.—Common.

72. CAPRIMULGUS EUROPÆUS, L.

Andorra.—The Nightjar was twice observed in the environs of the town of Andorra (3400 feet).

Upper Ariège.—Observed on rough ground on the mountain-side above the river Oriège, at 3000 feet, on the 18th of May.

73. GECINUS VIRIDIS (L.).

Andorra.—The Green Woodpecker was fairly common in the woodlands of the main basin of the valley about Andorra, San Julia, and Escaldas.

Upper Ariège.—Common in lower deciduous woods on the mountain-sides above Ax; but was not observed to range higher than 3000 feet.

74. IYNX TORQUILLA, L.

Upper Ariège.—The Wryneck was seen and heard on two occasions in the vicinity of Ax—once on the mountain-side at 3200 feet.

75. UPUPA EPOPS, L.

Mediterranean Region.—The Hoopoe was observed among the trees on an island near the embouchure of the small river at Argelès-sur-Mer on the 29th of May.

76. CUCULUS CANORUS, L.

Andorra.—Not common, a few being observed in the pine-forest above Escaldas from 5000 to 5800 feet. A Cuckoo was also seen in the valley at Canillo, 5100 feet.

Upper Ariège.—Fairly common in the valley at Ax, and ranges up to 5000 feet in the pines among the snow.

77. SYRNIUM ALUCO (L.).

Upper Ariège.—A Tawny Owl was put out of her nesting-hole (containing three eggs) in a large beech on the mountain west at Ax, at 4600 feet, on the 13th of May.

78. SCOPS GIU (Scop.).

Andorra.—The unmistakable note of a Scops Owl was heard at Escaldas on the evening of the 21st of May.

Upper Ariège.—A pair of these birds had taken up their summer residence in the tall beech-trees which form a remarkable feature in the town of Ax, whence they paid visits to our hotel garden in pursuit of insects. A female, shot on the 25th, had the crop full of insect-remains, chiefly coleopterous, among which those of a *Melolontha* predominated. At Tarascon one was observed sitting in a poplar by the river-side. At first it gazed at us in surprise; but imagining that it had escaped detection, it drew itself up into almost rod-like dimensions, and pressed its body as close as possible against the bole of the tree, hoping in this way to remain unseen.

79. CIRCUS ÆRUGINOSUS (L.).

Mediterranean Region.—Once or twice the Marsh Harrier was seen hunting over the downs near to the marshy ground between the embouchures of the Tech and the small river south of it.

80. CIRCUS CINERACEUS (Mont.).

A pair of small Harriers was seen on the downs, adjoining the sea, at Canet, on the 31st of May, the female being seen at fairly close quarters. At the time they were considered to be Montagu's Harriers, and this was probably the case; though M. Lacroix says of the species, "ne niche pas," while of *Circus swainsoni*, a very unlikely species to meet with so far west, this author remarks "niche accidentellement."

81. *AQUILA CHRYSÆTUS* (Linn.).

Upper Ariège.—When resting in the pine-forest above Ax, on the 16th of May, a Golden Eagle, hotly pursued by a Peregrine, passed within gunshot, and was satisfactorily identified.

Eagles and other large Accipitres were often seen, both in the Upper Ariège and Andorra; but always at great elevations. Their haunts were quite inaccessible at the date of our visit, owing to the snow, which yet lay on the higher portions of the mountains as deep as in the winter time.

82. *FALCO PEREGRINUS*, Tunstall.

Andorra.—A Peregrine was seen in the pine-forest above Escaldas in pursuit of a Kestrel.

Upper Ariège.—This species has already been alluded to as seen mobbing a Golden Eagle over the pine-forest above Ax.

83. *FALCO TINNUNCULUS*, L.

Andorra.—The Kestrel was common, and nesting on all the crags and cliffs. It was noted up to 6000 feet.

Upper Ariège.—The same remarks apply. The bird was observed from Tarascon to above Hospitalet (5500 feet). In the Pyrenees, so far as our observations went, the Kestrel was a rock-loving species.

Falcons were occasionally seen about the numerous suitable habitats afforded by the valleys of Andorra and Upper Ariège; but we were unable to identify more than the Peregrine and the Kestrel.

84. *ARDEA CINEREA*, L.

Mediterranean Region.—A pair of Herons was seen flying over the étang of Canet and St. Nazaire on the 28th of May.

85. *COLUMBA PALUMBUS*, L.

Upper Ariège.—The Ring Dove is not uncommon in the pine-forests west of Ax, where it was observed between 4600 and 5000 feet, and heard cooing contentedly among the trees over a heavy carpet of snow. This is another Pyrenean rarity in the breeding-season; for M. Lacroix says (*op. cit.* p. 168) of this species, for the range generally, “ne niche pas,” and

for Ariège, "Un passage considérable a lieu dans les cols des Pyrénées de ce département en octobre et novembre."

86. *TURTUR COMMUNIS*, Selby.

Andorra.—A pair of birds seen in the woodlands between Andorra and Escaldas were thought to be Turtle Doves.

Upper Ariège.—A pair were observed several times amongst the coppice-growth, at 2700 feet, on the mountain-side of the valley of the Oriège, above Ax.

Mediterranean Region.—Several were seen among the trees on the island near the embouchure of the small river north of Argelès-sur-Mer.

87. *COTURNIX COMMUNIS*, Bonnat.

Mediterranean Region.—The note of the Quail was heard on some arable land adjoining the downs at Argelès-sur-Mer on the 29th of May.

88. *LAGOPUS MUTUS*, Leach.

Andorra.—Ptarmigan were heard near at hand on the snows of the Port de Saldeu between 7350 and 8450 feet during the storm on the 25th of May.

89. *ÆDICNEMUS SCOLOPAX* (S. G. Gmel.).

Mediterranean Region.—The Stone Curlew was fairly common, and nesting on all the downs bordering the Mediterranean between Canet and Argelès-sur-Mer.

90. *GLAREOLA PRATINCOLA*, Linn.

Mediterranean Region.—On the 28th of May eight Pratincoles were observed on a moist stony patch on the west side of the étang of Canet and St. Nazaire, and were very confiding, allowing a close inspection to be made of them.

91. *ÆGIALITIS CANTIANA* (Lath.).

Mediterranean Region.—The Kentish Plover was common on the coast and the contiguous downs. Its nests were frequent on the beach just above high-water mark, and on the downs, where both eggs and young birds were found.

M. Lacroix was evidently unaware of its frequency in the Pyrénées-Orientales, for he says (*op. cit.* p. 185), "De passage régulier en avril, mai, fin août et septembre; quelques

rare couples restent l'été sur les côtes maritimes de ce département et s'y reproduisent."

92. *ÆGIALITIS CUBONICA* (Gmel.).

Mediterranean Region.—The Little Ringed Plover is probably fairly common, for we found two nests on the 29th and 30th of May, respectively, at Argelès-sur-Mer. One of these was on the sandy downs, a little more than one hundred yards from the sea, and contained four eggs. The second nest was a hollow in the sand, just above high-water mark, on the shore of the Mediterranean.

The breeding of this species on the shores of the Mediterranean is interesting, and would seem to be quite unusual; since the standard authorities usually consulted in matters connected with the breeding of our birds do not allude to its nesting in the vicinity of the sea, and, indeed, remark upon its general rarity on the coast at all seasons. It appears to nest, however, on the sea-board at or near the northern limit of its summer range in Europe.

93. *TRINGOIDES HYPOLEUCUS* (Linn.).

Andorra.—The river and streams of Andorra are such brimful, boiling torrents during the nesting-season that the almost entire absence of the Sandpiper is not a matter for surprise. We observed a bird of this species, however, on the only suitable habitat seen—a large patch of shingle on the river-side, just below the village of Encamp, at 4100 feet, on the 23rd of May.

Upper Ariège.—Sandpipers were noted on the river just below Ax and at Tarascon, and were no doubt breeding or about to breed. M. Lacroix says that it nests accidentally in Ariège, which can scarcely be a correct statement.

94. *TOTANUS CALIDRIS* (Linn.).

Mediterranean Region.—Several Redshanks were observed in the marshy tracts near the embouchures of the rivers. M. Lacroix remarks on this species for the Pyrénées-Orientales, "De passage en août, septembre, avril et mai, quelques rares couples restent en été."

XLVII.—*On a small Collection of Birds from the Louisiade and d'Entrecasteaux Islands.* By H. B. TRISTRAM, D.D., F.R.S.

IN the autumn of last year, Mr. Basil H. Thomson made a short expedition to the south-east corner of New Guinea and the d'Entrecasteaux and Louisiade Islands, on behalf of the Government of New South Wales, to endeavour to open communications with the natives of these groups, recently attached to the British Empire*. Mr. Thomson, intimately connected with York, through his father the Archbishop, has presented his birds to the York Museum, the authorities of which have kindly forwarded to me the collection for identification. The collection consists of 47 specimens of 33 species, 8 of which appear to me to be undescribed. The only specimens collected on the mainland of New Guinea were those of *Paradisea raggiana*, *Cicinnurus regius*, and *Craspedophora magnifica*, obtained at East Cape and Milne Bay. All the others are from the islands, which have been scarcely visited by any naturalist, so far as I am aware, excepting by John McGillivray, who touched there during the voyage of H.M.S. 'Rattlesnake,' and Mr. A. Goldie.

I proceed to give a list of the birds, with a few notes kindly supplied to me by Mr. Thomson.

1. PARADISEA RAGGIANA, Sclat.

One male specimen, in full plumage, taken at East Cape, New Guinea.

2. PARADISEA DECORA, Salvin & Godman.

Two male specimens, one in superb full plumage, the other immature, having the full plumage developed on the head and neck, but the axillary plumes only just beginning to sprout, about 2 inches long; and the two median rectrices 9 inches long instead of 16, and not wire-like filaments, but continuously barbed on either side, and terminating in a spatule, as in *Tanysiptera*. I may also observe that while the rachis of the median rectrices in the fully adult is jet-black,

* [See Mr. Thomson's narrative of his expedition, Proc. R. Geogr. Soc. 1889, p. 525.—ED.]

that of the junior is light brown, and the barbs yellowish brown with a golden hue. The breast and abdomen of the young are very pale chestnut, the former thickly marked with brown wavy lines.

Mr. Thomson remarks: "So far as we have found, and we searched very carefully, the *Paradisea decora* is confined exclusively to a mountain (Mt. Maybole) on the N.W. corner of Fergusson Island, where we met with it at 2500 ft. above the sea-level. The three specimens in the Sydney Museum were obtained on that mountain by Mr. Goldie, and we spent a fortnight in Fergusson Island searching for it. The note is very like that of *P. raggiana*, and if it is to be met with elsewhere, I feel sure that we should have heard or seen it."

3. *CICINNURUS REGIUS* (L.).

One male in full plumage. Milne Bay, S.E. New Guinea.

4. *CRASPEDOPHORA MAGNIFICA* (V.).

Two male specimens, fully adult. Milne Bay, S.E. New Guinea.

5. *MANUCODIA COMBII*, Sclat.

Three adult specimens from the d'Entrecasteaux Islands.

Of this gorgeous bird Mr. Thomson writes: "It is confined exclusively to the d'Entrecasteaux group, where it is by far the commonest bird. The extraordinary convolutions of the windpipe, which is coiled under the skin in the smaller species (*Manucodia thomsoni*, sp. nov.), are here replaced by a straight tube running from the throat to the vent, and returning before entering the thorax, about 18 inches in length altogether. The note is most peculiar—a low tremolo whistle of so peculiar a 'timbre' that it can be heard more than a mile from the shore." I am not aware that this extraordinary production and convolution of the windpipe in the Manucodes has ever previously been noted, excepting in *M. keraudreni*. In *M. atra*, according to Salvadori, it does not occur.

6. *MANUCODIA THOMSONI*, sp. nov.

One specimen from the d'Entrecasteaux Islands.

M. corpore prorsus toto purpureo-nitente; plumis dorsai, pectoris, et abdominis longis et filamentosis; capite, mento

et jugulo chalybæo-viridibus ; capite villosa, duabus cristis decorato ; colli plumis mucronatis ; rostro et pedibus nigris : long. tot. 12·3 poll. Angl., alæ 7, caudæ 6, tarsi 1·6, rostri a rictu 1·45.

This species may at once be distinguished by its oily green resplendent head, in marked contrast with the dark purple of the rest of the body. The wing-coverts are of a lustrous purple, which is not so bright on the body, owing to the dense mass of filamentous feathers with which it is covered above and below. The extraordinary convolutions of the trachea have been noted above. I have much pleasure in calling this new species by the name of its discoverer.

7. *CRATICUS LOUISIADENSIS*, sp. nov.

One specimen from Sudest Island.

Cr. nigerrimus ; abdomine imo et subcaudalibus albis ; supra-caudalibus albo terminatis ; subalaribus albis ; humeralibus apice albis ; remigibus secundariis quinto et sexto albis nigro terminatis, septimo in pogonio externo albo, nigro terminato ; rectricibus tribus externis macula alba in pogonio interno prope apicem præditis ; rostro margaritaceo, pedibus nigris : long. tot. 12·1 poll. Angl., alæ 6·25, caudæ 6, tarsi 1·1, rostr. 1·7.

This very distinct species appears to have no affinity in the distribution of its coloration to any other known member of the genus.

8. *MINO DUMONTI*, Less.

One specimen.

9. *DICÆUM NITIDUM*, sp. nov.

One specimen. Sudest Island.

D. D. rubro-coronato statura et coloribus simillimum, sed dorso scapularibus et remigibus viridi-olivaceis nec purpureo-cæruleis diversum.

This little bird seems to be an exact counterpart of *D. rubro-coronatum*, Sharpe, of the neighbouring coast of New Guinea, but with the marked differences of the upper parts being olive-green instead of purplish blue.

10. *CINNYRIS CHRISTIANÆ*, sp. nov.

Two male specimens. St. Aignan's Island.

C. (Hermotimia) H. corinnæ similis, sed paullo major; pileo plus aurato; gutture chalybeo-cæruleo, minime purpurascente, rostro longissimo; rostro pedibusque nigris.

This Sun-bird, belonging to the *Hermotimia* group, much resembles *H. aspasioides*. But it may at once be discriminated by its beak, which is much longer than in any other member of the family, and by the metallic coloration of the crown, which is intermediate between the metallic dark green of *C. corinnæ* and the golden hue of *C. auriceps*. The throat is of a resplendent metallic blue, without any of the purple hue which characterizes most of the other members of the genus. Though difficult to express in words, the marked distinctions are recognizable at a glance. I have named this bird after one whose neat fingers have often assisted me in ornithological work.

11. *MYZOMELA FORBESI*, Rams.

One male specimen. Fergusson Island.

Described originally by Mr. E. P. Ramsay from Woodlark Island.

12. *MONARCHA ALECTO*, Temm.

Male and female. Joannet Island.

13. *CHIBIA PROPINQUA*, sp. nov.

Two specimens. D'Entrecasteaux Islands.

C. Chibiæ læmostictæ (Sclat.) propinqua, sed differt maculis nitentibus colli antici imi et pectoris summi valde angustioribus, et elongatis, neque, sicut in *C. carbonaria*, rotundatis. Statura sicut in *C. læmosticta*.

The distinctions in this species are more easily seen by comparison than recognized by description.

14. *COLLOCALIA FUCIPHAGA* (Thunb.).

Two specimens. St. Aignans.

15. *PODARGUS PAPUENSIS*, Quoy & G.

Two specimens.

16. *EURYSTOMUS PACIFICUS* (Lath.).

One specimen.

17. *RHYTIDOCERUS PLICATUS* (Penn.).

One specimen.

18. *SAUROPATIS SAUROPHAGA* (Gould).

One specimen. East Island.

19. *SYMA TOROTORO*, Less.

Male and female. Fergusson Island.

20. *TANYSIPTERA ROSSELIANA*, sp. nov.

Two specimens. Rossel Island.

T. supra ultramarino-cærulea; capite toto et tectricibus alarum superioribus læte cæruleis; remigibus nigris, in pogonio externo cæruleo marginatis; tergo inferiore, cauda et toto corpore subtus purissime albis; cauda spatulata; spatula alba, sed parte rachidis angustiore duarum mediarum rectricum ultra caudam cærulea; rostro rubro; pedibus nigris: long. tot. 15 poll. Angl., alæ 4·35, caudæ 5·5, caud. cum rectr. med. 10·6, rostri 1·6.

This is one of the most beautiful members of this beautiful group. The long white graduated tail is very conspicuous, while the shafts of the two median feathers have a very minute blue edging, which terminates with the commencement of the white racket. In this disposition of the colours it seems to differ from all other described species.

21. *DACELO GAUDICHAUDI*, Quoy & G.

Male and female.

22. *NASITERNA PUSIO*, Sclat.

Two specimens. St. Aignan's Island.

23. *NINOX ROSSELIANA*, sp. nov.

One specimen. Rossel Island.

N. superne fusco-brunnea, unicolor; tectricibus alarum in externo pogonio albo maculatis; remigibus fuscis sine maculis; cauda obscure brunneo fasciata; pectore et abdomine albidis, striis castaneis longitudinaliter variegatis; tibiis et tarsis castaneis; rostro albido; pedibus pallidis: long. tot. 11 poll. Angl., alæ 8·1, caudæ 5, rostr. 9, tarsi 1·3.

This very plainly-clad little Owl seems nearest to the Australian *N. boobook*, though very much smaller. In mea-

surements, but not in coloration, it approaches closely to the description of *N. jacquinoti* from the Solomon Islands.

24. *HALIAETUS LEUCOGASTER* (Gm.).

One specimen.

25. *TADORNA RADJAH*, Garn.

One specimen. Fergusson Island.

26. *PTILOPUS STROPHIUM*, Gould.

Two males. East Island and Rossel Island.

27. *CARPOPHAGA SPILORRHOA*, Gray.

One specimen. St. Aignan's Island.

28. *CHALCOPHAPS CHRYSOCHLORA*, Gould.

One specimen. East Island.

29. *CALÆNAS NICOBARICA* (L.).

One specimen. Normanby Island.

30. *MACROPYGIA CARTERETIA*, Bp. Consp. ii. p. 57.

One specimen. St. Aignan's Island.

31. *MACROPYGIA CINEREICEPS*, sp. nov.

One specimen. Fergusson Island.

M. corpore superne cinnamomeo; capite cinereo; nucha viridi resplendente; mento albicante; pectore rufo-cinnamomeo; abdomine albidior; subcaudalibus late castaneis; remigibus brunneis castaneo marginatis; cauda castanea; rectricibus tribus externis fascia lata nigricante in medio cinctis.

The ash-coloured head sufficiently marks this species, the type of which is evidently fully adult. There is a single example of the same bird in the British Museum unnamed: it was obtained by Mr. H. O. Forbes on the S.E. coast of New Guinea, so that the species probably has a range of some extent.

32. *CHARADRIUS FULVUS*, Gm.

One specimen. Rossel Island.

33. *HIMANTOPUS LEUCOCEPHALUS*, Gould.

One specimen. Fergusson Island.

XLVIII.—Notices of recent Ornithological Publications.

[Continued from p. 396.]

94. *Allen on Birds from Bolivia.*

[List of the Birds collected in Bolivia by Dr. H. H. Rusby, with Field-Notes by the Collector. By J. A. Allen. Bull. Am. Mus. N. H. ii. no. 2. Author's edition.]

Dr. Rusby, a botanist, during his journey from Arica, in Chile, into Bolivia in 1885–86, made a collection of 400 specimens of birds, representing 267 species. Amongst these are 125 new to the Bolivian list, and 11 apparently new to science. The new species and subspecies are termed :—*Empidonax bolivianus*, *Chiroxiphia pareola boliviana*, *Enicornis* (scr. *Henicornis*) *striata* (probably from Valparaiso), *Leptasthenura fuscescens*, *L. fuliginiceps boliviana*, *Synalaxis griseiventris*, *Anabazenops immaculatus*, *Myrmochanes hypoleucus* (new genus near *Pyriglena*), *Conopophaga rusbyi*, *Phlogopsis notata*, and *Scytalopus bolivianus*. *Picolaptes obtectus* is also described as new in a footnote; it is based on one of the two specimens of *Picolaptes lacrymiger* in the Lafresnaye collection. *Opisthocomus cristatus* and *Palamedea cornuta* were procured on the Lower Beni, and *Centropelma micropterum* (Scl. et Salv. Ex. Orn. pl. xcv.) on Lake Titicaca. A few field-notes are added, but contain little of special interest, if we except the account of the domestic habits of *Psophia leucoptera* (*op. cit.* p. 107).

95. *Allen on Birds from Quito.*

[Notes on a Collection of Birds from Quito, Ecuador. By J. A. Allen. Bull. Am. Mus. N. H. ii. no. 2. Author's edition, issued March 22nd, 1889.]

Mr. Allen gives an account of a collection of 210 specimens of birds made in the immediate vicinity of Quito by Mr. L. Söderström. These are referred to 79 species, of which one, believed to be new (*Tityra nigriceps*), has already been described in 'The Auk' (1888, p. 287). Mr. Allen elevates *Pithys albifrons peruvianus* of Taczanowski, of which

8 examples are in the collection, to specific rank as *Pithys peruvianus*.

96. *British Association's 'Report on the Migration of Birds.'*

[Report on the Migration of Birds in the Spring and Autumn of 1887. By J. A. Harvie-Brown, J. Cordeaux, R. M. Barrington, A. G. More, and W. Eagle Clarke. Ninth Report (Vol. ii. no. 4). 8vo. Edinburgh: 1889.]

This is the ninth and final Report of a Committee which has done excellent service, although it has received an infinitesimal amount of pecuniary assistance and very little encouragement from the public. The patient labours of the individual members have now ceased, but the impetus given to the system and habit of taking an intelligent interest in our migratory birds will long continue among the light-keepers and others, who have responded so actively to the appeals made by the various recorders. We are glad to see that Mr. W. Eagle Clarke is condensing the results of the investigations made during the past nine years. The Red-breasted Flycatcher (*Muscicapa parva*) and the Lapland Bunting (*Calcarius lapponicus*) have been added the Irish list. Special thanks are due to Messrs. R. M. Barrington and A. G. More for the clear manner in which they have presented their portion of the Report.

97. *Büttikofer on new Liberian Birds.*

[On two probably new Birds from Liberia. By J. Büttikofer. Notes Leyden Mus. xi. p. 97.]

The presumed new species are described as *Drymocaptes johnsoni* and *Laniarius zosterops*.

98. *Büttikofer on a new Owl.*

[On a new Owl from Liberia. By J. Büttikofer. Notes Leyden Mus. xi. p. 34.]

Bubo lettii is the name proposed by Mr. Büttikofer for a very peculiar new Owl, discovered in Liberia by Mr. Stampfli.

It shows no affinity to the known Owls of the Old World, but is rather to be compared with *B. cristatus* of South America, having exceedingly long ear-tufts and white alar spots.

99. *Büttikofer on Birds from Liberia.*

[Zoological Researches in Liberia. Fourth List of Birds. By J. Büttikofer. Notes Leyden Mus. xi. p. 113.]

Mr. F. X. Stampfli, who was left in Liberia by Mr. Büttikofer in 1887 to continue his zoological researches, has now returned finally to Holland, and has brought with him a collection of about 250 specimens of birds, representing 92 species, of which one (*Bubo lettii*) has already been described as new, and eleven are additions to the Liberian avifauna. A list, with critical notes, is given of the whole collection, and *Bubo lettii* is figured. The paper is concluded with a general summary of all the species met with by Mr. Büttikofer and his assistants in Liberia, 229 in number. About 17 others, mentioned as having occurred in Liberia by previous authors, have not been obtained by Mr. Büttikofer and his friends.

100. *Büttikofer on Birds from South-western Africa.*

[On a new Collection of Birds from South-western Africa. By J. Büttikofer. Notes Leyden Mus. xi. p. 65.]

Mr. van der Kellen, whose previous collection of birds from the interior of South-west Africa has already been noticed (above p. 245), has sent to the Leyden Museum another series from Humpata, on the Upper Cunene. It contains 267 specimens, which Mr. Büttikofer refers to 103 species. Of these 49 are additional to the former list, and two (*Lophoceros alboterminatus* and *Francolinus jugularis*) are new to science; the latter is figured. The species now known from the Upper Cunene are 180 in number.

101. *Carazzi on the Birds of the District of Spezia.*

[2^a Appendice ai materiali per una Avifauna del Golfo di Spezia e della Val di Magra. Per Davide Carazzi. 8vo. Spezia: 1889.]

Sign. Carazzi, of the Museo Civico of Spezia, adds in this second appendix to his former lists* four more species to the avifauna of this district, and shows that one species must be removed from the list—the supposed example of *Terekia cinerea* having turned out to be *Tringa canutus*. The total number of species of birds now recognized in this district is therefore 315.

102. *Chamberlain's 'Notes on Non-Volant Birds.'*

[Notes on Non-Volant Birds. Being a Paper read to the Members of the Largo Naturalists' Society, 2nd August, 1888. By Walter Chamberlain, F.Z.S. 8vo. Cupar, Fifeshire: 1888.]

Mr. Walter Chamberlain has put together, in his interesting Address to the Largo Naturalists' Society, some of the chief facts known concerning birds that cannot fly. We are not quite certain that the Kagu (*Rhinochetus jubatus*) can be strictly comprehended in the list. Mr. Chamberlain is, no doubt, correct in his conclusion that the Penguin-type has "at no period of its existence possessed the power of flight." As regards the vexed question as to the descent of the Struthiones, he inclines to Mr. Wallace's view, that the early progenitors of these birds had "at least some limited powers of flight."

103. *Check-List of North-American Birds (Supplement).*

[Supplement to the Code of Nomenclature and Check-List of North-American Birds, adopted by the American Ornithologists' Union, prepared by a Committee of the Union. 8vo. New York: 1889.]

The Supplement to the 'Check-List of North-American Birds' contains the names of the "tenable species and subspecies, genera and subgenera, added since the publication of the Check-List, together with the necessary eliminations and the valid changes in nomenclature made since the Check-List was issued." It is conveniently arranged under three heads,—“Additions,” “Eliminations,” and “Changes of Nomenclature.” The additional species and subspecies are 63 in number, besides which *Chen caerulescens* is “restored

* (*Y. Ibis*, 1888, pp. 134, 303.)

from the hypothetical list." Three supposed species are eliminated.

104. *Check-List of North-American Birds.* (Abridged edition.)

[Check-List of North-American Birds, according to the Canons of Nomenclature of the American Ornithologists' Union. Abridged edition, revised. 8vo. Washington: 1889.]

The abridged edition of the 'Check-List of North-American Birds' contains only the scientific and English names and the references to former editions of the American List. It embraces the species enumerated in the Supplement recently issued (see above) as well as those in the original Check-List of 1885. As in the Supplement, the new species are interpolated, and numbered in each case the same as the immediately preceding species with the addition of a decimal point and second number, in order to secure the permanence of the numbers in the original Check-List. A list of introduced species is added, but the list of fossil birds is omitted.

105. *Ernst on the Birds in the Museum of Caracas.*

[Catalogo de las Aves en el Museo Nacional de Caracas. Por A. Ernst, Director del Museo. Revista Cient. Univers. Central Venezuela, i. p. 25.]

Our valued correspondent, Dr. Ernst, has lately sent to the library of the Zoological Society of London a complete set of the numbers of vol. i. of the 'Revista Cientifica' of the Central University of Venezuela, which we had not previously seen. It contains the paper of which we now give the title, apparently issued in 1887.

The list enumerates 339 species, including many extraneous birds. As the author observes, the series of Venezuelan species is by no means complete, and it is a great misfortune that no one has, as yet, attempted even a complete catalogue of the birds of this most interesting country, of which the avifauna must embrace, we should say, at least 600 or 700 species.

106. *Harvie-Brown and Buckley, 'Vertebrate Fauna of the Outer Hebrides.'*

[A Vertebrate Fauna of the Outer Hebrides. By J. A. Harvie-Brown and T. E. Buckley. 8vo. Edinburgh: 1888.]

This handsome volume shows a great improvement in style upon the work on Sutherland and Caithness, which we noticed last year (*Ibis*, 1888, p. 272). Moreover the material is far more interesting, inasmuch as comparatively few ornithologists have been able to visit the numerous outlying islets to which Mr. Harvie-Brown and his companions have devoted so much attention; and, again, an acquaintance with these remote spots is a work of difficulty and often of danger. We are now furnished, for the first time, with a really trustworthy account of the ornithology of the Outer Hebrides; for, much as we are indebted to the late Robert Gray for his '*Birds of the West of Scotland*,' it must be remembered that his personal experience was confined to two or three short visits made in his business capacity as bank inspector and during a fortnight's detention on North Uist. Mr. J. G. Millais has contributed one of his striking title-pages (this time of mammals), while maps and reproductions of photographs embellish a volume which can be heartily recommended.

107. *Leverkühn on the Birds mentioned in the Koran.*

[Welche Vögel nennt der Koran? Von Paul Leverkühn. *Zeitschr. für die ges. Ornith.* Budapest, iv. p. 413.]

Herr Leverkühn writes of the few passages in the Koran that relate to birds, of which only five or six common species appear to have attracted Mahomet's attention. There are, however, some queer stories in relation to some of these birds introduced into the paper.

108. *Leverkühn on new South-American Birds.*

[Südamerikanische Nova aus dem Kieler Museum. Von Paul Leverkühn. *Journ. f. Ornith.* 1889, p. 101.]

The Museum of the Zoological Institute of the University

of Kiel has contained for the past forty years the large series of birds collected by the late Dr. Behn during his voyage round the world in the Danish Frigate 'Galathea' (1845-47) and his subsequent land-journey across South America. These collections, containing about 10,000 skins, have scarcely been touched since their acquisition*, and to a great extent lie still packed in their original cases. Herr Leverkühn has now commenced the task of working them out, in which he has received assistance from various specialists. Mr. Seebohm has already described a new Thrush obtained by Behn in Brazil (*Merula subalaris*, P. Z. S. 1887, p. 557). Herr Leverkühn now describes *Aphobus megistus* from Bolivia, *Homorus galathea* from Matto Grosso, *Terenura elaopteryx* (based on a dealer's specimen, probably from Cayenne), and *Polioptila boliviana*, Scl. (species restituta).

109. Marshall on the Parrots.

[Die Papageien (Psittaci). Von William Marshall. Zoologische Vortr. Heft 1. Leipzig: 1889.]

This is a general essay on the structure, systematic arrangement, and distribution of the great and well-marked order Psittaci, of which some 450 species are now known to naturalists. It contains much information on the subject in a small space. Prof. Marshall divides the Psittaci into ten subfamilies, uniting under the "Pionidæ" some American and some African genera. In this we should hardly be disposed to agree with him, as we believe that all the American Parrots will be found to belong essentially to one group. We may also remark that the table of distribution of the West-Indian Parrots is not quite correct. *Chrysotis versicolor* is not found in Cuba, but in St. Lucia†, and *Chrysotis bouqueti* of Dominica is altogether omitted.

* In 1853 the Editor of this Journal had the good fortune of being allowed to examine this Collection, and obtained from it in exchange a few duplicates, amongst which was a specimen of *Monacha nigrifrons*. See Mon. Jac. & Puffbirds, p. 160.

† Cf. Sclater, P. Z. S. 1881, p. 627.

110. *Marshall on the Woodpeckers.*

[Die Spechte (Pici). Von William Marshall. Zoologische Vortr. Heft 2. Leipzig: 1889.]

Prof. Marshall has devoted his second ornithological essay to the Woodpeckers (Pici), also a very strongly marked group, and one of which there can be no doubt as to the limits. After a general account of the structure and habits of these birds, a scheme of their classification and distribution is appended. The author divides the Pici into four families—Jyngidæ, Picumnidæ, Hemicercidæ, and Picidæ—and gives a list of the species and their *patriæ*.

111. *Mojsisovics on the Zoo-geography of Southern Hungary.*

[Zoogeographische Notizen über Süd-Ungarn aus den Jahren 1880-88. Zugleich ein iii. Nachtrag zur "Fauna von Béklye und Dárda." Von Prof. Md. univ. Dr. A. v. Mojsisovics. Mittheil. Naturwissenschaftl. Ver. für Steiermark, Graz, 1888.]

To Professor Mojsisovics's summary of his researches into the peculiarities of the fauna of Southern Hungary—a subject on which he has published fifteen contributions since 1881—is here added a list of the birds of the Drave district observed during this period. The list contains the names of 243 species.

112. *Pleske's 'Ornithographia Rossica.'*

[Ornithographia Rossica. Die Vogelfauna des Russischen Reichs von Th. Pleske. Lief. 1. Grasmücken (*Sylvia*). 4to. St. Pétersbourg: 1880.]

A complete account of the birds of the Russian Empire, if under present circumstances such a work can be satisfactorily accomplished, will be very important for ornithology, and we welcome its commencement under the auspices of the Imperial Academy of Sciences with great pleasure. M. Pleske, who has succeeded M. Bogdanow in the charge of the birds of the Imperial Collection, has undertaken the task, and his scheme, as given in the introduction, seems to be very good, but we should have thought that it would require

more than two volumes to complete it. It would be naturally expected that such a publication should be in the national language, but it is with great pleasure that we see it accompanied by a German translation. The first livraison contains an account of the 13 Russian *Sylvia*, with plates containing figures of the following species :—*Sylvia althea* (2 figs.), *S. curruca* (2 figs.), *S. minuscula* (3 figs.).

113. *Radde and Walter on the Birds of Transcaspia.*

[Die Vögel Transcaspiens. Von Dr. G. Radde und Dr. A. Walter. Ornith., 1889, Parts i. & ii.]

The first two numbers of this year's 'Ornis' are mainly occupied with a memoir on the results, as regards birds, of the Transcaspian Expedition of Dr. Radde, Dr. Walter, and Herr Konschin, which merits the careful attention of those interested in Palæarctic ornithology. About 800 birdskins were obtained, which are referred in the first part of the memoir to 297 species. These, as might have been expected, are mostly well-known Palæarctic forms, though a few intruders from Northern India are noted in the list. Almost the only novelty is *Lanius raddei*, already described and figured in this Journal (*suprà*, p. 89, pl. v.) by Mr. Dresser from Dr. Radde's specimens. In the second part of the memoir some very interesting notes are given upon the rarer and more characteristic species, and a special account of the breeding-birds of Transcaspia and their distribution. A well-executed map shows the various routes of the expedition.

114. *Saunders's 'Manual of British Birds.'*

[An Illustrated Manual of British Birds. By Howard Saunders. Parts VIII.–XV. 8vo. London: 1888–89.]

Our valued ex-coadjutor makes regular and satisfactory progress with his 'Illustrated Manual of British Birds,' which, we understand, is attaining a very good circulation, and will, we are sure, attract many recruits to the army of British ornithologists. Four or five more parts, which will all be issued before the close of the year, will complete the work,

which will then form by far the most handy and convenient manual on the subject yet published.

115. *Shufeldt on the Osteology of Circus hudsonius.*

[Osteology of *Circus hudsonius*. By R. W. Shufeldt, M.D., C.M.Z.S. Reprinted from the Journ. Comp. Medicine & Surg. April 1889.]

Dr. Shufeldt's object in the present memoir is "simply to present a detailed account of the osteology of a good representative American Hawk." This, we need hardly say, he has well accomplished, though we are not quite sure that *Circus* ought to have been selected as a typical Falconine bird. As is always the case in Dr. Shufeldt's memoirs, the figures are clearly drawn and distinctly cut.

116. *Shufeldt on the Osteology of the Anseres.*

[Observations upon the Osteology of the North-American Anseres. By Dr. R. W. Shufeldt. Proc. U.S. Nat. Mus. xi. p. 216.]

Dr. Shufeldt gives us here a good account of the osteology of some of the North-American Anatidæ, such species as *Mergus serrator*, *Somateria dresseri*, *Spatula clypeata*, *Glaucconetta islandica*, and *Bernicla hutchinsi* being selected for illustration. It would be very good of the author to examine a larger series of forms of this family, and to show us how it may be divided most naturally into subfamilies. This is one of the groups in which osteological structure could not fail to be of primary importance in the indication of affinities.

117. *Shufeldt on the Osteology of the Water-Birds.*

[Contributions to the Comparative Osteology of Arctic and Sub-Arctic Water-Birds. Part III. By R. W. Shufeldt, M.D., C.M.Z.S. Journ. Anat. & Physiol. xxiii. p. 400.]

We have already noticed the first two parts of this series of memoirs (*suprà*, pp. 252, 393). The third, now before us, contains a further account of the Alcidiæ, and deals with the skeletons of *Synthiborhamphus*, *Brachyrhamphus*, and *Cepphus*. When the Alcidiæ are finished we hope that the author will be able to state the results arrived at in a more definite form.

118. *Sousa on Birds from Angola.*

[Aves da Huilla (Angola) remetidas ao Museu de Lisboa pelo Reverendo Padre Antunes. Por José Augusto de Sousa. *Jorn. Sci. Math. Phys. e Nat. Lisboa*, 2^a ser. no. 1, p. 37, 1889.]

A list is given of 25 species of birds represented in a collection remitted by Padre Antunes from Huilla, in Angola. One species is described as new (*Serinus huillensis*), and *Ciconia nigra* is mentioned as occurring in Angola for the first time.

119. *Sousa on Birds collected by Sr. Anchieta.*

[Aves de Angola da Exploração do Sr. José d'Anchieta. Por José Augusto de Sousa. *Jorn. Sci. Math. Phys. e Nat. Lisboa*, 2^a ser. no. 1, p. 41, 1889.]

Sr. Sousa gives an account of a second * collection obtained by the well-known collector Sr. Anchieta in Quindumbo, in S.E. Africa, in the autumn of 1887, together with some notes of the collector. The specimens are referred to 46 species, whereof one, *Lagonosticta cinereo-vinacea*, is described as new. Others are noted as rare or imperfectly known.

120. *Strauch on the Zoological Museum of St. Petersburg.*

[Das Zoologische Museum der Kaiserlichen Akademie der Wissenschaften zu St. Petersburg in seinem fünfzig jährigen Bestehen. Von Dr. Alexander Strauch. St. Petersburg: 1889.]

In this instructive memoir we find a complete history of the past and present state of the celebrated Museum of St. Petersburg, its buildings, endowments, staff, and collections, prepared by Dr. Strauch, the present Director. The Museum was founded by John Frederick Brandt (its first Director) in 1832, upon whose death, in 1879, the present Director succeeded him.

The ornithological collection, although rich in possessing the types of Ménériés, Brandt, Nordmann, Middendorf, v. Shrenck, Radde, Eversmann, Przewalsky, and many other well-known Russian travellers and collectors, is not large,

* See *Jorn. Sc. Lisboa*, xii. p. 216, for an account of the first collection.

numerically, compared with other great European museums, containing only about 24,000 examples, referable to 3538 species, and is poor in exotic forms.

121. *Wallace on Darwinism.*

[Darwinism : an Exposition of the Theory of Natural Selection, with some of its Applications. By Alfred Russel Wallace. London : 1889. 1 vol. 8vo. 494 pp.]

It is quite time that a new and popular exposition of the theory of Natural Selection, "from the standpoint reached after thirty years of discussion," should be drawn up, and no one could have been suggested to perform this task so well as our excellent fellow-worker Mr. Wallace, himself the co-discoverer with Darwin of that immortal theory. We have read through this well-arranged and well-written treatise with great pleasure, and are sure that, although it is not specially connected with ornithology, most other members of the B. O. U. have done, or will do, the same. In our opinion the author has well succeeded in his endeavour "to enable any intelligent reader to obtain a clear conception of Darwin's work, and to understand something of the power and range of his great principle."

We may venture, however, to call Mr. Wallace's attention to two small (ornithological) points, which require a few words of correction in the next edition. The species of the genus *Cinclus* (see p. 116) should not be said to frequent "exclusively" the mountain-streams of the northern hemisphere. Three well-marked members of this group are found only in the highlands of South America, namely, *C. leuconotus* in Colombia, *C. leucocephalus* in Peru, and *C. schulzi* in the Argentine Republic.

It is also quite true that (as stated, p. 154) the great mass of Parrots never breed in captivity. But it is very singular and worthy of notice that some of the small Australian species (*Melopsittacus undulatus*, *Euphema pulchella*) are, on the other hand, ready and constant breeders in our aviaries—"Natura non habet regulam."

Mr. Wallace has devoted some space to the criticism of

Darwin's theory of sexual selection, so far as it includes the action of female choice or preference on the development of decorations in the male. We fully acknowledge the force of his arguments, but are hardly disposed to coincide with the alternative explanation of "greater vigour and excitability" as sufficient to account for the many extraordinary developments of the male plumage in birds and other animals. We also rather take exception to the expression "accessory plumes," often used in this connection. These so-called "accessory plumes" will always be found on close examination to be nothing more than *ordinary* plumes *extraordinarily* developed, not new creations, as one would be led to suppose by that ill-chosen expression.

122. *Watson's 'Sylvan Folk.'*

[*Sylvan Folk: Sketches of Bird and Animal Life in Britain.* By John Watson. 12mo. London: 1889.]

This is a collection of newspaper and magazine articles, one of which has appeared in the 'Gentleman's Magazine' as recently as August last, though the work was published last spring. The author places the Swifts among the Swallows, which he calls "Hirundines"; speaks of the Little Bustard as now *extinct* in Great Britain; indulges in the hope that the Great Auk still exists within the Arctic circle; and is ostentatious in his contempt for "the dry bones of science." The style of the book is *after* that which is identified with the name of the late Richard Jefferies, and the author's disregard for syntax is as obvious as his "scant sympathy for that species of natural history which is acquired in closets."

XLIX.—*Letters, Extracts, Notices, &c.*

WE have received the following letters addressed to the Editor of 'The Ibis':—

69 Cornwall Road,
South Kensington, S.W.

SIR,—It may be interesting to subscribers in this country,

who happen to possess the second edition of my 'Birds of New Zealand,' to learn that, through a most unfortunate shipwreck, the number of copies in existence has been considerably diminished, and the commercial value of the book affected accordingly.

By the last mail from New Zealand I received a letter from Mr. T. F. Cheesman, the Curator of the Auckland Museum, who had kindly undertaken to be my distributing agent, in which he says:—"I was glad to hear that the subscribers' copies of your book were on their way, and I got everything ready for attending to their distribution immediately on arrival, in accordance with the plan mentioned in your letter. You will be very sorry to hear, however, that, through a most unfortunate and lamentable accident, the whole consignment has been lost. The cases arrived in Wellington quite safely, and were transhipped to Auckland by the Union Company's steamer the 'Maitai.' She ran upon a rock near the Mercury Islands and went down in deep water, there being hardly time for the crew and passengers to get off—in fact, two were drowned. The loss is a most unfortunate one, and no one regrets it more than myself."

Yours &c.,

WALTER BULLER.

Keswick, Norwich,
June 2nd, 1880.

SIR,—Among birds there is an undoubted tendency in species to vary not infrequently, and for the most part in plumage, so as to resemble other allied species which inhabit a different geographical area. One cannot help thinking that this tendency, which does not seem to have been much dwelt on by any writer, will now and then furnish a key to the supposed appearances of birds in a country remote from their own. It is not impossible that thus we may account for a recent acquisition of the British list in the shape of Adams's Diver (*Colymbus adamsi*), which is only distinguished from the Great Northern Diver (*C. glacialis*) by the white colour of the bill and a slight difference in its shape. It is stated that Divers indistinguishable from the American species have

occurred three times in Suffolk, and I can answer for the first one, it being in my father's collection, while a fourth was shot at Embleton, in Northumberland, in December 1829, and a fifth in Norway (*cf.* Ibis, 1884, p. 346). These may have been, as good authorities believe, real examples of *C. adamsi*, which had come over from America; one cannot prove that they were not so; but there is another and an alternative theory, which is now put forward with diffidence, to account for their presence here.

It is evident that occasionally, under circumstances unknown to us, almost any kind of bird can, and does, throw out some of the distinctive colours of an allied species, reverting to some ancient epoch when it had not separated itself from that species, which it now, by a "sport," as it were, again resembles. Besides the Divers (*C. glacialis*), five other cases occur to my mind, all relating to species the specific distinctness of which is generally unquestioned, in which this form of imitation seems to have happened. These I will briefly run over. They may all be described as recent candidates for admission to the list of British birds, and three of them are taken notice of in the List compiled by the Committee of the British Ornithologists' Union.

In 1861 an example of *Picus major*, obtained in Shetland, varied so as to resemble *P. leuconotus*, and was even figured as such in Gould's 'Birds of Great Britain,' though it was proved afterwards by Professor Newton that it could not be of that species (Zoologist, 1881, p. 399).

In the 'Zoologist' for 1886, p. 478, Mr. Gunn records a Greater Spotted Woodpecker (*Picus major*), with "a few scarlet feathers on its chest," obtained in Norfolk. This was clearly an approximation to the Algerian Woodpecker (*Picus numidicus*), but there is no reason to think that it was really one of that species. The pectoral band was not distinctly red enough for that, even if it had agreed precisely in every other way. It is equally unlikely that *Picus numidicus* would ever fly over from Northern Africa to Germany, where the supposed occurrence of this species near Münster is easily explained by the theory of variation on the part of its near ally, *P. major*.

In the 'Zoologist' for 1877, p. 22, Mr. Corbin records a black Starling in Hampshire; and in the 'Yorkshire Naturalist' for 1886, p. 307, Mr. James Backhouse records another shot at Howden, in Yorkshire. These may have been veritable examples of the Sardinian Starling (*Sturnus unicolor*, which had flown over to England, or, what is more likely, they may have been examples of our Common Starling (*Sturnus vulgaris*) which had assumed the sable garb of an allied species, so as to be almost indistinguishable from it.

In 1863 a Snipe (*Gallinago caelestis*) was killed in Buckinghamshire, which to so great an extent possessed the characters of *Gallinago wilsoni* of America, as to lead Mr. Gould and Mr. Harting to believe at first that it was assignable to that species (Harting, Handbook B. B. p. 143).

In 1864 a Buzzard was killed in Wiltshire which so closely resembled *Buteo desertorum* (Daudin) that Mr. Gould and my father both decided it must be of that species. But after all, according to the theory now advanced, it may have been only *B. vulgaris* (Leach), a closely allied species and one which varies greatly. My father afterwards recorded two more specimens (Ibis, 1878, p. 118), killed in England, indistinguishable from *B. desertorum*.

It is very difficult to arrive at the truth, but on looking over the list of British birds there are several doubtful species, besides those which have now been enumerated, supposed to be accidental stragglers which have flown over the sea to us, which it is not at all impossible may be accounted for in the manner which has just been indicated, viz., by supposing that they are the abnormal offspring of normally coloured parents, and that they have assumed a plumage which does not belong to them. It is only reasonable to suppose that many more cases of like variation might be obtained by looking abroad, if the search were made by a sufficiently competent ornithologist, which the writer does not for one moment suppose himself to be.

Yours &c.,

J. H. GURNEY, Jun.

Chilliwreak, British Columbia,
July 1889.

SIR,—I beg leave to send you a few ornithological notes and corrections made on reading Lieut. W. W. Cordeaux's article on the 'Birds of Cashmere and the Dras District' (Ibis, 1888, p. 218).

"*Ruticilla leucocephala*" (*op. cit.* p. 219) has been often termed a Redstart, but, like *Rhyacornis fuliginosus* and *Adelura caeruleocephala*, it has not the habits of a Redstart. In these three birds the characteristic quiver of the tail is wanting, and the two first-named species are eminently aquatic.

"*Corvus culminatus*" (*l. s. c.*) should be *Corvus intermedius* or some other hill-species. I was up the Scind valley myself, and I did not see *C. culminatus* there, nor in any part of the Himalayas where I have been. It is essentially a bird of the plains of India.

Mr. Cordeaux failed to see any difference between the Dras Magpies and our English ones. A close comparison of the skins of each would be necessary. I have never made the comparison; nor have I compared the American one with the European form. The latter, I mean the American, never fails to find a wounded Duck, and many a Mallard have I had spoiled by these birds. They turn the Duck over and commence operations on the breast, and soon make a deep hole. In shooting I often use stuffed decoy Ducks, with a wooden body, weighted so as to float naturally on the water. One day, having left my ambush for a short time to search for a wounded Duck, I got back just in time to prevent the mutilation of my decoys, with which the Magpies were very busy, having pulled out a few feathers.

"*Geocichla unicolor*" (*op. cit.* p. 222).—This bird is a true *Turdus*, as much so as *T. musicus*.

"*Turtur meena*" (*op. cit.* p. 222).—I only found *Turtur rupicola* in Cashmere. *T. meena* is, I think, more eastern. None of my Cashmere birds had the grey under tail-coverts of *Turtur meena*.

"*Corvus splendens*" (*op. cit.* p. 223).—The coloration of the Cashmere Common Crow is similar to that of the plains' bird, but, nevertheless, it differs conspicuously. If not a

distinct species, it is certainly a good race. The grey is very much paler, almost white.

I shall now make one or two remarks upon some passages in vol. v. of the British Museum Catalogue.

Phylloscopus viridipennis (*op. cit.* p. 58).—Blyth's types, which I most carefully examined and reexamined, were small examples of *Phylloscopus trochiloides*. In his description of the species Blyth does not mention any white on the tail, and he was much too accurate a man to have overlooked this. This white-tailed species should stand as *P. presbytis*, Müller, for certainly the synonym *viridipennis* cannot be applied to it.

Hypolais rama and *Hypolais caligata*.—Mr Seebohm says (*op. cit.* p. 86), "in colour *H. caligata* does not differ from" *H. rama*. Not in faded summer plumage, but when freshly moulted *H. rama* is pale mouse-grey or a greyish brown, while *H. caligata* is a warm reddish brown. Apart from size, this is also the notable distinction between *Alauda gulgula* and my *Alauda guttata* of Cashmere, one, when freshly moulted, having bright rufous-brown edges to the feathers of the upper surface, while those of *A. guttata* are dull brown of a purplish tinge; this proving absolute distinctness. I may here remark that the type of my *Alauda australis* is in the Indian Museum, Calcutta. It is a very distinct species, strongly differing from both *A. gulgula* and *A. malabarica*.

Mr. Seebohm (*op. cit.* p. 120) suppresses the genus *Dumeticola*, which is *Locustella* with a plain back, instead of being streaked, and has not the very minute first primary of *Locustella* and *Acrocephalus*. Now the *Dumeticolæ* are very close to the Grasshopper Warblers, and have the same Grasshopper-like song, and it won't do at all to class them with a good songster like *Luscinola melanopogon*, which bird, in spite of its larger first primary, is really very close to *Acrocephalus phragmitis*.

Mr. Seebohm has, no doubt, done his best in attempting to reclassify all these little birds, but working entirely among dry skins, and not having seen the birds in life, he has signally failed. Now *Phylloscopus neglectus* should never be placed with *Phylloscopus indicus* and *P. fuscatus*, but its affinities are with *Curruca*, except the eye, which has not a

light-coloured iris like a Whitethroat's. Its alarm-note is very close to that of *Curruca cinerea* and *C. affinis* when the nest is approached: it is what I termed a "churring" sound in 'Stray Feathers,' but which was misprinted "cheering."

Cettia and *Horornis*, united by Mr. Seebohm (*op. cit.* p. 133), are very distinct genera, the one being aquatic and the other not. *Horeites* is a small-sized *Horornis*. The eggs of *Cettia* and *Horornis* are of similar colour, but so are those of the Owls and the Doves.

My *Horeites pullidus* Mr. Seebohm suppresses and unites with *H. fortipes*; but I have very often seen and heard both birds in life, and they are distinct species. Worse still, he suppresses Mr. Hume's utterly distinct *H. brunnescens*, of quite a distinct coloration and size, and which is not found even in the same country.

Yours &c.,

W. E. BROOKS.

Magdalene College, Cambridge,
6 August, 1889.

SIR,—In reference to the alleged use by the nestling *Opisthocomus cristatus* of its fore limbs as instruments of progression (*suprà*, p. 286), allow me to say that I have observed the same thing in a very different kind of bird. Some years ago there was brought to me a newly-hatched Little Grebe (*Podiceps fluviatilis*) which could not have been more than twelve hours old. When laid on a table which was covered with a cloth, the bird not only crawled about it, but crossed it completely from side to side, without, indeed, actually sustaining its weight by its wings, but dragging itself forward by their means quite as much as it impelled itself by its legs. The resemblance of its actions to those of a slowly-moving Reptile was very remarkable. As I am not aware that any notice of this faculty of going on "all fours" has been hitherto published, it may be worth while drawing attention to the fact.

Yours &c.,

ALFRED NEWTON.

Heligoland,

August 26, 1880.

SIR,—Whilst subjecting my manuscript on the Ornis of Heligoland to a final revision, it appeared to me that there exists as marked a specific difference between specimens of *Phylloscopus proregulus* from Siberia and those from India, as there is between *Ph. superciliosus* and *Ph. humei*. In both instances the Siberian bird differs from that of India in general colour of plumage, which in the former is suffused with a bright lemon-yellow, approaching and partly surpassing that of *P. sibilatrix*, whereas the colour of the latter consists entirely of a dull brownish olive-yellow, verging in *P. humei*, in many instances, towards ashy grey. But although the difference in coloration of a series of skins from Siberia and a series from India when placed alongside each other is a very prominent one, still the specific distinction becomes much more convincing when the wing-formula of these birds is subjected to a comparative examination.

In the Siberian bird the 2nd quill is of equal length with the 8th, in the Indian bird with the 10th; in the former bird the 2nd quill is only 6 millim. shorter than the point of the closed wing, in the latter this difference amounts to 10 millim.; and whilst in the Indian bird the 2nd quill is of equal length with the longest of the three posterior quills, it is in the Siberian from 6 to 7 millim. longer.

Further, in the Siberian bird the 3rd, 4th, and 5th quills are of equal length and form the point of the closed wing, whereas in the Indian one such is the case with the 4th, 5th, and 6th quills, the 3rd being 3 millim. shorter than these.

These measurements are derived from eight skins, four of them being of Siberian origin and four collected in India. The proportions of the quills in each of these series being so constant—differing perhaps from one half to one millimetre—and the colour of them being likewise distinct, there seems to be no reason for doubt that the Indian bird has as well-founded a claim to specific separation from the Siberian *Phylloscopus proregulus* as *P. humei* has from *P. superciliosus*, *P. tristis* from *P. fuscatus*, or *P. trochilus*

from *P. rufus*. I therefore propose the name *Phylloscopus newtoni*, after Professor Alfred Newton, for the Indian bird.

Yours &c.,

H. GÄTKE.

Seggieden,

August 31, 1889.

SIR,—It may be interesting to the Members of the B. O. U. to mention that by a mere chance a short time ago I heard of a Thrush with a black throat having been shot several years since in the vicinity of Perth, and that suspecting from the description that it might turn out to be *Turdus atrigularis* of Temminck, I made immediate inquiries, and ultimately obtained a sight of the bird, which proved to be, as I had suspected, the true Black-throated Thrush of Siberia (*Turdus atrigularis*). It was shot near the side of the Tay, a little below Perth, in the very severe winter of 1878–1879, in the month of February, by Mr. Robert Gloag, and was in company with another bird of the same species on a spit of waste ground thickly interspersed with thistles, docks, and wild sorrel, on the seeds of which they seemed to be feeding. There was a thaw at the time, after a lengthened snow-storm, and Mr. Gloag being out with his gun, and having some knowledge of birds, was attracted by their noisy call-notes, which were strange to him. He therefore fired and secured one of the birds; the other flew across the Tay, over Moncreiffe Island, into the woods below the Kinnoull Cliffs, and was not seen again. Fortunately the bird was preserved and was given by Mr. Gloag to his brother, Mr. John Gloag, in whose possession it has been for many years, and who, notwithstanding the rarity of the bird, kindly presented it to the Perthshire Society of Natural Science for their Local Museum at Perth, in which it is now placed. The bird is about the size of the Redwing and, as far as one can judge, about 6½ inches in length. The whole of the upper parts are olive-brown, darkest on the head, each feather being margined with a lighter shade. Throat and breast dark brownish black, each feather lighter on the

edges, giving it a somewhat streaky or mottled appearance. Belly dirty white, shading into greyish brown on the flanks; vent dirty white, feathers edged with pale reddish brown; tail uniform darkish brown; shafts of feathers underneath very pale yellowish brown, inside of wing rich yellowish chestnut; bill (apparently) brown above and yellowish underneath, about the same size as that of the Redwing, but slightly stouter; legs and claws yellowish brown.

I have no doubt as to the identity of the bird.

I am &c.,

H. M. DRUMMOND-HAY.

British Museum (Natural History),
Cromwell Road,
London, S.W.,
Sept. 3, 1889.

SIR,—I regret to find that the name of "*Poliopsar*," which I proposed as a genus for the Indian and Chinese Starlings (Ibis, 1888, p. 476), is preoccupied by Cassin (Proc. Acad. Phil. 1867, p. 55). I propose therefore to change it to *Spodiopsar*, which will include the following species:—*Spodiopsar cineraceus*, *S. colletti*, *S. sericeus*, *S. cambodianus*, *S. burmanicus*, *S. leucocephalus*, *S. andamanensis*, *S. erythropygius*, *S. malabaricus*, *S. nemoricola*, and *S. blythi*.

The new species described by Count Salvadori, *Poliopsar fuscogularis* (Salvad. Ann. Mus. Genov. ser. 2, vii. p. 364), is, in my opinion, only a specimen of *Spodiopsar burmanicus* with dirt on the throat, as Mr. Oates showed me, when the type was sent to him by Count Salvadori for examination.

I am &c.,

R. BOWDLER SHARPE.

Croft House, Holywood, Co. Down.
September 7th, 1889.

SIR,—Mr. Robert Gage, of Rathlin Island, reports the capture there on Monday last, 2nd inst., of a specimen of the Fulmar Petrel (*Fulmarus glacialis*), the first and only

example of the bird he ever knew to be taken on the island. It was captured alive.

Yours &c.,

H. LLOYD PATTERSON.

Habits of Newton's Bower-bird.—At the Meeting of the Royal Society of Queensland held on June 14th last, as we learn from 'Nature,' Mr. C. W. De Vis read a paper on two recent additions to the Avifauna of the Colony—*Prionodura newtoniana** and *Acanthiza squamata*.

The former, which had been found on the highlands north of Yerberton, was minutely described by Mr. De Vis, as also were its habits of life. Two specimens, a male and a female, were exhibited. A peculiarity noticed was the extraordinary size of the bowers which these birds construct. These were made of small sticks and twigs, piled up almost horizontally round trees to a height of from 4–6 feet. In addition to these they built numbers of dwarf, hut-like fabrics, which gave to these structures the appearance of a miniature black's camp.

Parliamentary Report on the British Museum.—In the Parliamentary Report of the British Museum for this year, we find special record of the "magnificent gift" made by Mr. F. DuCane Godman, F.R.S., of the Henshaw Collection of North-American birds, containing a series of 1100 skins, which have all been carefully named by leading American ornithologists. Altogether no less than 20,279 additions were made to the National Ornithological Collection in 1888, amongst which the following are specified as being of special interest:—

Seventy-six specimens of British birds, presented by Theodore Fisher, Esq. ; fifty-three eggs of Guillemots and Razor-bills from Flamborough Head, presented by the Earl of Londesborough ; a specimen of the Isabelline Wheatear (*Saxicola isabellina*) shot in Cumberland, presented by the

* [A new generic form of Bower-birds, lately described by Mr. De Vis. See Proc. Linn. Soc. N. S. W. vii. p. 561 (1883).—Ed.]

Rev. H. A. Macpherson ; two hundred and thirty-one birds from Cyprus, including specimens of a new Titmouse (*Parus cypriotes*), presented by Lord Lilford ; one hundred and forty-nine birds from the Palæarctic Region ; also sixty-four specimens from Central Asia and Mongolia, duplicates from the Collection of the late General Prjevalski, among them *Phasianus strauchi* and *Falco hendersoni*, presented by Henry Seebohm, Esq. ; a specimen of a Swan from Eastern Asia (*Cygnus davidi*), new to the collection, presented by Professor Giglioli ; sixty-nine birds from Ichang, China, including examples of *Yuhina diademata* and other rarities, purchased ; forty-four specimens of birds from West Africa, including examples of twenty species new to the collection, presented by the Lisbon Museum ; one hundred and eighty-five birds from Fao, in the Persian Gulf, presented by W. D. Cumming, Esq. ; thirteen specimens of birds from Muscat, Arabia ; including three examples of *Bubo milesi*, presented by Surgeon-Major A. S. G. Jayakar ; examples of four species of birds from Quetta, including some of *Falco hendersoni* and *Bubo turcomanus*, presented by Sir Oliver St. John ; thirty-five specimens of birds from the Comoro Islands, including examples of *Scops capnodes* and *Turdus bewsheri*, purchased ; eight specimens from the Comoro Islands, including specimens of *Humblotia flavirostris* and *Cinnyris humbloti*, presented by the Paris Museum ; seventy-four birds from the mountains of Perak, seven of the species represented being previously undescribed, presented by L. Wray, jun., Esq. ; examples of five species from Liberia and the Malayan Islands, four of them new to the Museum, presented by the Leyden Museum ; fifty-four specimens from N.E. Borneo, including the type of *Carpophaga everetti*, purchased ; three specimens (male, female, and young) of a Weaver-Finch (*Chlorura hyperythra*) from Kina Balu, purchased ; fifty-seven birds from the Solomon Islands, including examples of *Astur woodfordi*, *A. shebae*, *Nasiterna aole*, *Myzomela sharpii*, and others, purchased ; seventy-two specimens from the Solomon Islands, collected and presented by C. M. Woodford, Esq. ; fifty-two specimens from S.E. New Guinea, collected by Mr. H. O. Forbes, and containing

types of some new species (*Rallicula forbesi*, *Melirrhophetes batesi*, &c.), purchased; examples of ten species of birds from the Arfak Mountains, N.W. New Guinea (including some of *Oreopsittacus arfaki* and *Drepanornis bruijni*), purchased; the type of *Platalea intermedia* from S.E. New Guinea, presented by Lord Walsingham, F.R.S.; and specimens of *Paradisea augustæ-victoriæ* and *Cyclopsitta edwardsi* from N.E. New Guinea, purchased.

Mr. Bowdler Sharpe has forwarded us the subjoined extract from a letter lately received from Mr. F. J. Jackson, F.Z.S. :—

“ Ulu, Ukumbani, E. C. Africa,
“ March 2nd, 1889.

“ On the march up here in November to December, Quails (*Coturnix delagorguei*) were in great numbers, evidently migrating north or north-west, as in January 1887 they were equally numerous at Kilimanjaro. At Teita, on the River Voi, I obtained a pair of Francolins which I had not seen before. I also saw and heard them as far north as the River Tiwa, but none since. The species is larger than *F. granti*, but not so large as *Pternestes clappertoni*; the male has the breast beautifully mottled with black, the female brown or chestnut; the legs are bright coral-red, the upper mandible dusky, the lower one dull carmine. They are essentially a bush bird. I have also got two very fine male specimens of Floriken, but I am puzzled as to whether they are of the same species in different states of plumage or distinct. One has a grey neck and white breast, with the crown of slate-colour mixed with brown, bordered with black. The other more resembles the female of the first, but has a black throat, the feathers tipped with white, which gives it a silvery appearance; there is a deep black line down the throat to the breast and abdomen, which is a rich brown-black. The legs of both are a dull yellowish white, and both are fully adult, from dissection. I hope to make a fair collection of the game-birds. I have already got three kinds of Francolin that I had not got before. The Vulturine Guinea-fowl was fairly plentiful

from the River Voi to the Tsavo. At this place Weavers and Hawks predominate; the latter, I think, are attracted by the quantities of mice and rats in the 'shambas.' Do Weavers make nests for roosting in during the non-breeding-season? I ask this, as there is a bird here about the size of the common Whydah bird without the tail; in colouring it reminds me very much of the Waxwing, with a dull white crown. The nest, which is built of grass throughout, has two holes underneath, and is used for roosting in. I have, however, found several nests with one hole filled up, containing young ones or eggs, which latter are pure white. For the last two months most of the birds have been moulting, and, consequently, out of every three birds killed only one is fit to skin. By-the-bye *Colinus passer eques* is very common all the way from Teita up to here. *Trachyphonus erythrocephalus* is very common up here, also a much smaller species. A beautiful little Black Swallow with small white crown also plentiful, a Bee-eater which is new to me, and two or three Weavers are the most important additions."

Abundance of Phasianus principalis on the Upper Murghab.—At Maruchak, on the Upper Murghab, in Northern Afghanistan, on the 19th of December, 1885, Major Durand and Major Yate, as recorded in the latter officer's 'Letters from the Afghan Boundary Commission,' brought in a bag of nearly 50 pheasants (*Phasianus principalis*) killed during the afternoon. "It is extraordinary," Major Yate remarks, "what a number of pheasants there are in the reed-swamps of this valley, and this year they seem to be even more numerous than last. I know of no country in the world where one can get such good real wild-pheasant shooting as this. On the 21st we also brought in a bag of 72 pheasants, but, as on the first day, lost a good many wounded birds. The reeds are so thick, and the birds, especially the old cocks, so strong, that it is very hard to bag one's bird even after it is shot."

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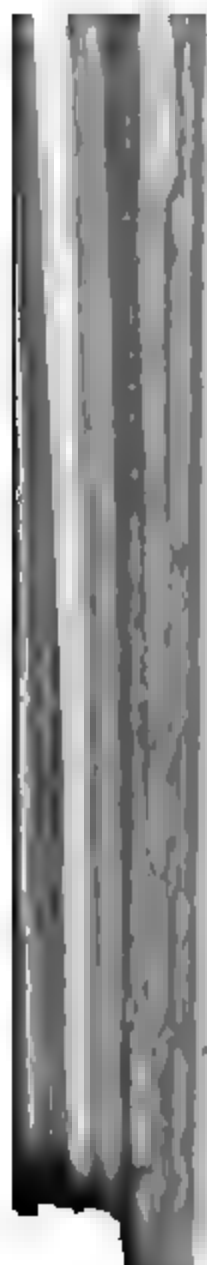
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